

INDEX OF SUBJECTS.

ABSTRACTS. 1902. Parts I. & II.

(Marked A. i and A. ii respectively); and also to Transactions, 1902 (marked T.); and to Proceedings, 1901—1902; Nos. 241 to 258, Nov., 1901—Dec., 1902 (marked P.).

A.

- Abrin** (HAUSMANN), A., i, 408.
action of erepsin and intestinal juice on (SIEBER and SCHUMOFF-SIMONOWSKI), A., ii, 680.
- Absorption**, intestinal (REID), A., ii, 412.
in Octopods, mechanism of (COHNHEIM), A., ii, 572.
of carbohydrates by the rectum (REACH), A., ii, 413.
of fat (LEHMANN and VOIT), A., ii, 155 ; (PFLÜGER), A., ii, 273.
of finely divided metallic mercury (FRIEDENTHAL), A., ii, 93.
of the nitrogen from oatmeal by the dog (NOËL-PATON), A., ii, 336.
of proteid in Octopods (COHNHEIM), A., ii, 572.
of simple stereoisomeric sugars in the small intestine (NAGANO), A., ii, 516.
- Absorption**, relations of, to analytical and agricultural chemistry (SCHALLER), A., ii, 226.
- Acaci Cuatchu*, constituents of (PERKIN and YOSHITAKE), T., 1160 ; P., 1902, 139.
- Accumulators**. See Electrochemistry.
- Acer Pseudoplatanus*, occurrence of tannin, starch, and sugar in first-year plants of (HÄMMERLE), A., ii, 347.
- Acet.** See also Aceto-, Acetyl-, and under the Parent Substance.
- Acetaldehyde**, action of magnesium amalgam on (MEUNIER), A., i, 335.
condensation of, with 4-methylpyridinecarboxylic acid (KOENIGS), A., i, 180.
- Acetaldehyde**, 4-mono-, 2:4-di-, 2:4:6-trichlorophenylhydrazone, nitro- (BAMBERGER and GROB ; BAMBERGER and FREI), A., i, 248.

- Acetaldehyde-ββ-disulphonic acid (DELÉPINE)**, A., i, 133.
- Acetals**, formation of, from hydroxynitriles (STOELLÉ), A., i, 468.
- Acetamide**, trichloro- (CLERMONT), A., i, 71.
- Acetanilide**, action of thioacetic acid on (WHEELER and JOHNSON), A., i, 759.
- Acetanilide**, halogen derivatives, velocity of intramolecular rearrangement in (BLANKSMA), A., ii, 646.
s-trihalogen derivatives, nitration of (ORTON), T., 500 ; P., 1902, 73.
2:3:4:6-tetrabromo-, 2:3:4:triбromo-6-nitro-, and s-chlorobromonitro-derivatives (ORTON), T., 497 ; P., 1902, 59.
isomeric chloro-derivatives, from acetylchloroaminobenzenes (CHATTAWAY and ORTON), P., 1902, 200.
2:4- and 4:2-chlorobromo- (CHATTAWAY and WADMORE), T., 987 ; P., 1902, 173.
iodo-derivatives of (WILLGERODT and ARNOLD), A., i, 16.
- Acetanilides**, thiocyanato-, molecular rearrangement of, into labile ψ-thiohydantoins (WHEELER and JOHNSON), A., i, 758.
- Acetic acid**, dissociation and molecular complexity of, in chloroform solution (DAWSON), T., 521 ; P., 1902, 69.
compound of, with nitric acid (PICTET and GENQUAND), A., i, 584.
estimation of, in lead accumulators (FORMENTI), A., ii, 363.
- Acetic acid**, barium salt, solubility and hydrates of (WALKER and FYFFE), P., 1902, 246.
basic beryllium salt (URBAIN and LACOMBE), A., i, 132.

- Acetic acid**, cupric salt, action of heat on (ANGEL and HARCOURT), T., 1385; P., 1902, 185.
 mercury salts, action of, on acetylene (BURKARD and TRAVERS), T., 1270; P., 1902, 183.
 mercuric salt, oxidations with (BALBIANO and PAOLINI), A., i, 808.
- Acetic acid**, ethyl ester, action of sodamide and its acyl derivatives on (TITHERLEY), T., 1527; P., 1902, 187.
 nitrolic acid of, synthesis of (JOVITSCH), A., i, 202.
 $2:4-d$ -nitrobenzyl ester (COHN and FRIEDLÄNDER), A., i, 376, 791.
 nitroisohexyl ester (MOUSSET), A., i, 254.
- Acetic acid**, amino-. See Glycine.
 diamino-, derivatives of (WILLSTÄTER), A., i, 349.
 bromo-, ethyl ester, condensation of, with cyclopentanone and β -methylcyclopentanone (SPERANSKI), A., i, 341.
 bromo- and chloro-, decomposition of, by various bases in solution in different alcohols (SCHWEINBERGER), A., ii, 126.
 chloro-, action of, on *p*-hydroxyazobenzene (MAI and SCHWABACHER), A., i, 126.
 trichloro- (CLERMONT), A., i, 71.
 chloroimino-, ethyl ester, synthesis of (JOVITSCH), A., i, 202.
 cyano-, ethyl ester, condensation of, with aldehydes (GUARESCHI), A., i, 819.
 condensation of, with carbon tetrachloride (DIMROTH), A., i, 740.
 action of, on diazonium and tetraazonium chlorides (FAVREL), A., i, 329.
 action of ethyl bromotrimethylsucinate on the sodium derivative of (BONE and SPRANKLING), T., 52; P., 1901, 243.
 action of halogens and ethyl bromocyanooacetate on (ERRERA and PERCIABOSCO), A., i, 116.
 interaction of, with hydramides (BECCARI), A., i, 375.
 difluoro-, and its barium salt (SWARTS), A., i, 130.
 iodo-, ethyl ester, and zinc, condensations with (TÉTRY), A., i, 584.
 thiol-, triphenylmethyl ester (WHEELER), A., i, 29.
- Acetic anhydride**, preparation of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 418.
- Acetic anhydride**, action of zinc chloride on (MONTANARI), A., i, 200.
- Acetic bromide**, tribromo- (BILTZ), A., i, 417.
- Acetic chloride**, trichloro- (BILTZ), A., i, 417.
 preparation of (DELACRE), A., i, 527.
- Acetic peroxide**, formation, decomposition and germicidal action of (FREER and NOVY), A., i, 369.
- Aceto-**. See also Acet-, Acetyl-, and under the Parent Substance.
- Acetoacetamide**, and its copper salt, phenylhydrazone, and phenylazo, derivative of (CLAISEN and MEYER), A., i, 207.
- Acetoacetic acid**, detection of, in urine (ALLARD), A., ii, 363.
 and its ethyl ester, action of diazo-benzene on (BAMBERGER and WHEELWRIGHT), A., i, 406.
- Acetoacetic acid**, ethyl ester, and its derivatives (v. MEYER, FRIESSNER, and v. FINDEISEN), A., i, 657.
 and methyl or ethyl iodide, action of zinc on a mixture of (REFORMATSKY and LUKASCHEWITSCH), A., i, 10.
 oxime of, synthesis of (JOVITSCH), A., i, 202.
 phenylacetylhydrazide of (BOERZELEN), A., i, 58.
 pyromucetylhydrazide of (CURTIUS and LEIMBACH), A., i, 302.
 α -thiophenecarboxylic hydrazide of (CURTIUS and THYSSEN), A., i, 305.
 methyl ester, and its copper, benzoyl, *p*-nitrophenylhydrazide, and semi-carbazide derivatives (LAPWORTH and HANN), T., 1501; P., 1902, 145.
 methyl and ethyl esters, sodium derivative, action of acid chlorides on (BONGERT), A., i, 73.
isopropyl ester (MOUREU and DELANGE), A., i, 164.
- Acetoacetic acid**, β -chloro-, ethyl ester, action of, on diazo-chlorides (FAVREL), A., i, 644.
- Acetoacetic acid series**, acid and ketone decomposition in the (KNOEVENAGEL and FRIES), A., i, 226.
- Aceto- ψ -cumidine**, chloro- (KUHARA and CHIKASHIGÉ), A., i, 227.
- Acetol**. See Acetylcarbinol.
- Acetone**, from crystallised egg-albumin (ORGLER), A., i, 407.
 formation of, from gelatin (NEUBERG and BLUMENTHAL), A., ii, 516.
 vapour pressure in the system, water, phenol, and (SCHREINEMAKERS), A., ii, 243, 380, 599.

- Acetone**, condensation of, with 8-aldehydonaphthoic acid (ZINK), A., i, 34.
 condensation products of, with 1:8-naphthylenediamine and its derivatives (BADISCHE ANILIN- & SODA-FABRIK), A., i, 124.
 action of, on nitro-opionic acid (BOOK), A., i, 464.
 action of sodamide on (TITHERLEY), T., 1526; P., 1902, 186; (FREUND and SPEYER), A., i, 584.
 physiological action of (ARCHANGELSKY), A., ii, 36.
- Acetone**, bromo- and chloro-, electrolytic formation of (RICHARD), A., i, 133.
 nitro-, preparation of, and its salts (HARRIES), A., i, 185.
- Acetone- β -naphthylcarbamic acid hydrazone** (BORSCHE), A., i, 186.
- Acetone- α -trisulphonic acid** (DELÉPINE), A., i, 133.
- Acetonitrile**, latent heat of vaporisation of (KAHLENBERG), A., ii, 195.
- Acetonitrile**, amino- (LAGES), A., i, 354.
- Acetylacetone**, interaction of, with formaldehyde (KNORR and RABE), A., i, 13.
- Acetylacetonedisemicarbazone** (POSNER), A., i, 83.
- Acetylacetonephenylhydrazone**, bimolecular, and its isomeride (SMITH and McCOY), A., i, 645.
- Acetylacetylacetone** and its copper derivative (MARCH), A., i, 707.
- Acetylaminophthalimidine** and its oxime (ZINK), A., i, 34.
- Acetylaminotromeconin**, constitution of (BOOK), A., i, 464.
- Acetyltri-*p*-tolylarsenic compounds** (MICHAELIS and KRAHE), A., i, 521.
- Acetophenone**, condensation of, with 8-aldehydonaphthoic acid (ZINK), A., i, 34.
 derivatives (RUPE, BRAUN, and v. ZEMBRUSKI), A., i, 40.
- Acetophenone**, amino- and nitro-derivatives of (Camps), A., i, 294.
3:5-diamino- and *3:5-dinitro-* (BEREND and HEYMANN), A., i, 470.
p-bromo- and *p*-chloro- ω -bromo-, action of alcoholic ammonia on (COLLET), A., i, 39.
- Acetophenonebenzylmercaptal**, *m*-nitro- (POSNER), A., i, 623.
- Acetophenonedibenzylsulphone** (POSNER), A., i, 622.
- Acetophenonedi-benzyl-, -ethyl-, and -phenyl-sulphones**, *m*-amino- and *m*- and *p*-nitro- (POSNER), A., i, 623.
- Acetophenoneoxime**, halogen derivatives of (COLLET), A., i, 625.
- Acetophenone-phenyl- and -*o*-tolylcarbamic acids**, hydrazones of (BORSCHE), A., i, 186.
- Acetophenonesemicarbazone** (BORSCHE), A., i, 186.
- Aceto-*o*- and -*p*-toluidides**, thiocyanato-, and the action of thioacetic acid on (WHEELER and JOHNSON), A., i, 759.
- Aceto-*m*-toluidide**, chloro- (KUHARA and CHIKASHIGÉ), A., i, 227.
 constitution of the products of nitration of (COHEN and DAKIN), P., 1902, 240.
- o*-**Acetoxyazoxybenzene** (BAMBERGER), A., i, 505.
- Acetoxybenzylidene bromides**, *m*- and *p*- (RICHTER), A., i, 163.
- γ -**Acetoxy- β -diphenyl- Δ^{α} -crotono-lactone** and α -benzylidenebutyrolactone (THIELE and STRAUS), A., i, 154.
- o*-**Acetoxyindanone**, 2-bromo- (MINIAT), A., i, 296.
- Aceto-*as-m*-xylidine**, chloro- (KUHARA and CHIKASHIGÉ), A., i, 227.
- Acetoxyphenanthrenes**, 2- and 3-, and their quinones (PSCHORR and KLEIN), A., i, 97.
- 7*-**Acetoxy-2-phenyl-4-benzyl-1:4-benzopyranol** (BÜLOW and GROTONSKY), A., i, 485.
- γ -**Acetoxy- α -phenyl- γ -benzylbutyrolactone** (THIELE and STRAUS), A., i, 159.
- α -**Acetoxy- γ -phenylbutyronitrile**, β -mono-, and $\beta\gamma$ -di-bromo- (THIELE and SALZBERGER), A., i, 157.
- α -**Acetoxy- γ -phenylcrotonic acid** (THIELE and SALZBERGER), A., i, 157.
- 7*-**Acetoxy-2-phenyl-1:4-dihydrobenzopyran** (BÜLOW and v. SICHERER), A., i, 113.
- Acetyl-** See also Acet-, Aceto-, and under the Parent Substance.
- Acetyl phosphide**, dichloro- (EVANS and VANDERKLEED), A., i, 273.
- Acetylacetone** and its substituted derivatives, action of, on diazonium and tetra-azonium chlorides (FAVREL), A., i, 507.
 aluminium, ferric, and lanthanum derivatives (HANTZSCH and DESCH), A., i, 708.
 sodium derivative, action of halogen esters and ketones on (MARCH), A., i, 706.
- Acetylacetone**, amino-, action of ethyl malonate and malonamide on (KNOVENAGEL and CREMER), A., i, 640.
- Acetyl-*m*-aminoacetophenone** and its oxime (RUPE, BRAUN, and v. ZEMBRUSKI), A., i, 40.

- Acetyl-p-aminoacetophenone** from di-acetanilide (CHATTAWAY), P., 1902, 173.
- 4-Acetylaminophenol**, 2:3:6-tribromo- and 6-bromo-2-nitro- (ROBERTSON), T., 1478; P., 1902, 190.
- 3-Acetylaminophenonaphthalocridine** and its ethyl bromide (ULLMANN), A., i, 56.
- Acetylation** of aromatic amines (PAWLEWSKI), A., i, 209.
- Acetylbenzamidophenylhydrazone hydrate** (BUHLMANN and EINHORN), A., i, 95.
- Acetyl bromoamide**, preparation of (BEHREND and SCHREIBER), A., i, 14.
- Acetyl-p-bromo- and -p-chloro-anilides** and their halogen derivatives (COLLET), A., i, 625.
- Acetyl bromodextrose**, preparation of (MOLL VAN CHARANTE), A., i, 426.
- Acetyl-o-bromophenyl nitrogen chloride** (CHATTAWAY and WADMORE), T., 987; P., 1902, 174.
- δ-Acetylbutyl iodide** (ZELINSKY and MOSER), A., i, 670.
- Acetylcarbinol (acetol)**, supposed preparation of (SIMONCINI), A., i, 198.
- p-Acetylchloroaminoazobenzene** (CHATTAWAY), T., 982; P., 1902, 174.
- Acetylchloroaminobenzenes**, transformation of, into the isomeric chloro-acetanilides (CHATTAWAY and ORTON), P., 1902, 200.
- Acetylchloroamino-2:6-dibromo-4-nitro-, and -2:4:6- and -2:6:4 chlorobromo-nitro-benzenes** (ORTON), T., 497; P., 1902, 59.
- Acetylchloroamino-2:4:6-tribromo-3-nitro- and -4-chloro-2:6-dibromo-3-nitro-benzenes** (ORTON), T., 503; P., 1902, 74.
- Acetyl-o-chlorophenyl nitrogen bromide** (CHATTAWAY and WADMORE), T., 987; P., 1902, 174.
- Acetylochenilic acid**, and its methyl esters, anhydrides and acetic anhydride (LIEBERMANN and LINDENBAUM), A., i, 787.
- Acetylcoumarin** (WIDMAN), A., i, 374.
- Acetyl dimethylamide**, dibromo- (WILLSTÄTTER), A., i, 350.
- Acetyl-1:1-dimethylcyclohexanones-3**, 1- and 4- (LESER), A., i, 262.
- Acetylene**, electrochemical studies with (BILLITZER), A., ii, 439. electrolysis of (BILLITZER), A., ii, 593. heat of combustion and of dissociation of (MIXTER), A., ii, 60. decomposition of, during its combustion (GAUD), A., i, 253. acid nature of (BILLITZER), A., i, 525.
- Acetylene**, action of, on the acetates of mercury (BURKARD and TRAVERS), T., 1270; P., 1902, 183. action of oxidising agents on (BASCHIERI), A., i, 197. new reactions of (SANDMAN), A., i, 581.
- Acetylenetriphenyltriamine**, preparation of (SABANÉEFF, RAKOWSKY, and PROSIN), A., i, 604.
- Acetylenoid metallic radicles** (BERTHELOT), A., i, 208.
- p-Acetylethylbenzene**, oxime of (KLAGES), A., i, 612.
- Acetyl-mono- and -di-glucosamines** (FRÄNKEL and KELLY), A., i, 479.
- Acetylhydroxamic acid**, ferric salt (HANTZSCH and DESCH), A., i, 708.
- Acetyl-m-hydroxyphenyl-p-tolylamine** and its ethylether and -sulphonic acids (GNEHM and VEILLON), A., i, 286.
- Acetylides**, electrolysis of (BILLITZER), A., ii, 593.
- N-Acetylindoxylic acid**, salts (VORLÄNDER and DRESCHER), A., i, 720. diethyl ester (VORLÄNDER, MÜMME, and WANGERIN), A., i, 455. methyl and ethyl esters (FARBWERK MÜHLHEIM VORM. A. LEONHARDT & Co.), A., i, 456.
- Acetylionone** (HAARMANN & REIMER), A., i, 471.
- Acetylmesitylene**, compounds of, with magnesium ethiodide (KLAGES), A., i, 666.
- Acetylmethylanilide**, chloro- (KUHARA and CHIKASHIGÉ), A., i, 227.
- Acetylmethylantranilic acid** (SCHULTZ and FLACHSLÄNDER), A., i, 778.
- γ-Acetyl-β-methylbutyric acid**, and its ethyl ester (KNOEVENAGEL and BRUNSWIG), A., i, 641.
- γ-Acetyl-γ-methylbutyric acid**, and its ethyl ester and semicarbazone (MARCH), A., i, 707.
- Acetylethylene-p-phenylenediamine** (ULLMANN), A., i, 119.
- Acetyl methylheptanone** (LESER), A., i, 261.
- Acetyl methylheptenone**, and the action of sulphuric acid on (LESER), A., i, 262.
- 5-Acetyl-4-methylpyrazole-3-carboxylic acid** and its salts, ethyl ester and oxime (KLAGES), A., i, 496.
- 2-Acetyl-3-methylpyrazoline-3:5-dicarboxylic acid**, methyl ester (BUCHNER and SCHRÖDER), A., i, 319.
- 2-Acetyl-3-methylquinoxaline** and its oxime, phenylhydrazone, *p*-nitrophenylhydrazone and semicarbazone (SACHS and RÖHMER), A., i, 837.

- α -Acetyl- γ -phenylacetooacetic acid**, ethyl ester and copper salt (BÜLOW and HAILER), A., i, 326.
- Acetylphenylbenzylidenetriazan** (WOHL and SCHIFF), A., i, 578.
- γ -Acetyl- γ -phenylbutyrolactone- β -carboxylic acid** and its barium salt and semicarbazone (STOBBE and NIEDENZU), A., i, 460.
- α -Acetylphenylcarbamic acid**, ethyl ester (CAMP), A., i, 178.
- Acetylphenylhydrazine**, action of formaldehyde on (GOLDSCHMIDT), A., i, 716. nitroso- (WOHL and SCHIFF), A., i, 578.
- Acetylphenylhydroxylamine** (BAMBERGER and DESTRAZ), A., i, 539.
- Acetylphenylmalonamic acid**, ethyl ester (CAMP), A., i, 397.
- 4-Acetyl-2-phenyl-5-methylfuran** and its oxime and semicarbazone (MARCH), A., i, 484.
- 4-Acetyl-2-phenyl-5-methylpyrrole** (MARCH), A., i, 484.
- 5-Acetyl-4-phenylpyrazoline-3:5-dicarboxylic acid**, methyl ester and its phenylhydrazone (BUCHNER and SCHRÖDER), A., i, 319.
- 2-Acetyl-3-phenylquinoxaline** and its phenylhydrazone and semicarbazone (SACHS and RÖHMER), A., i, 837.
- Acetylpropionyl-disemicarbazone**, and -phenylhydrazone semicarbazone (POSNER), A., i, 82.
- Acetylisopropylbutyric acid**. See δ -Keto- β -isopropylhexoic acid.
- p-Acetyltetrahydrotoluene** and its oxime, dibromo-oxime, and semicarbazone (WALLACH and RAHN), A., i, 804.
- Acetylthiocarbamic acid**, ethyl acetate of (WHEELER and BEARDSLEY), A., i, 503. ethylbenzene derivative of (WHEELER and JAMIESON), A., i, 763.
- Acetylthiocarbamic acid**, isobutyl ester (WHEELER and JOHNSON), A., i, 761.
- Acetyl- ψ -thiocarbamides** (WHEELER and JOHNSON), A., i, 26.
- Acetyl-thioglycoll-anilide** and *p*-xylidide (WHEELER and JOHNSON), A., i, 759.
- Acetyl- β -trimethyldehydrobrazilin** (HERZIG and POLLAK), A., i, 483.
- Acid** (m. p. 126-127°), from the reduction of trichloromethylparaconic acid (MYERS), A., i, 590. from the hydrolysis of serum-albumin (LANGSTEIN), A., i, 331. free, origin and nature of the, formed during Hübl's reaction with unsaturated compounds (INGLE), A., i, 528.
- Acid**, $C_2H_4O_3N_2$, and its salts, from nitromalonamide and sulphuric acid (ULPIANI and FERRETTI), A., i, 431.
- $C_2H_7O_3P$, from ethylene glycol and phosphorous acid (CARRE), A., i, 131.
- $C_4H_5O_3N$, ethyl ester, and its silver salt, from ethyl dimethylpyromedicarboxylate and hydroxylamine (PALAZZO), A., i, 816.
- $C_7H_8O_4$, and its ester and bromo-derivative, from the action of ethyl sodiomalonate on $\alpha\gamma$ -dibromo- β -dimethylpropane (IPATIEFF), A., i, 588.
- $C_7H_{10}O_2$, and its ester, amide, and dibromide, from cyclopentanolacetic acid (WALLACH and SPERANSKI), A., i, 722, 800.
- $C_7H_{10}O_4$, from pilocarpine (PINNER and SCHWARZ), A., i, 232.
- $C_8H_{12}O_2$, and its ethyl ester, amide, and nitrile from β -methylcyclopentanolacetic acid (WALLACH and SPERANSKI), A., i, 722.
- $C_8H_{12}O_4$, and their bromo-derivatives, from the action of ethyl sodiomalonate on the isomeric tribromo-isopentanes (IPATIEFF and SWIDERSKI), A., i, 132.
- $C_8H_{12}O_5$, from the oxidation of camphoric acid, constitution of (BALBIANO), A., i, 741.
- $C_9H_{13}O_3N_3$, ethyl ester, from semicarbazide and ethyl $\gamma\gamma$ -diacetylbutyrate (MARCH), A., i, 707.
- $C_9H_{14}O_4$, and its silver salt, from the oxidation of isothujoneketolactone (WALLACH), A., i, 802.
- $C_9H_{15}O_4N$, and its salts, from diethyl methylhexahydrocinchomeronate methiodide (SKRAUP and PICCOLI), A., i, 565.
- $C_9H_{16}O_2$, from heating the acid $C_{10}H_{16}O_4$ (SOLONINA), A., i, 256.
- $C_9H_{16}O_4$, and its silver salt, from thuja-menthoketonic acid (WALLACH), A., i, 802.
- $C_9H_{17}O_3N$, and its hydrochloride from 3-keto-2:2:5:5-tetramethyl-pyrrolidone (PAULY), A., i, 560.
- $C_{10}H_{16}O_2$, from the hydrolysis of ethyl bromo- α -dihydrocampholenate (BLAISE and BLANC), A., i, 300.
- $C_{10}H_{16}O_4$, ethyl ester, from the action of ethyl sodiomalonate on diethylallene and hydrogen bromide (SOLONINA), A., i, 256.
- $C_{10}H_{18}O_3$, from the reduction of camphonic acid (LAPWORTH and LENTON), T., 22.

- Acid**, $C_{11}H_{10}O_4$, or $C_{14}H_{14}O_5$, from the oxidation of sabinolglycuronic acid (FROMM and HILDEBRANDT), A., ii, 160.
- $C_{12}H_{14}O_4N$, and its hydrate, from the action of hydrochloric acid on the alkaline solution of $C_{12}H_{10}O_3N$ (DE JONG), A., i, 123.
- $C_{12}H_{16}O_2$, and its ester from 3-methyl-5-isopropyl- Δ^2 -cyclohexenone (WALLACH and BÖTTICHER), A., i, 799.
- $C_{12}H_{18}O_2$, ethyl ester (two), from carvenone and dihydrocarvone (WALLACH and THÖLKE), A., i, 723, 800.
- $C_{12}H_{19}O_2$, and its ethyl ester and silver salt, from ethyl mentholacetate (WALLACH and THÖLKE), A., i, 799.
- $C_{12}H_{20}O_2$, and its ethyl ester, from ethyl carvomentholacetate (WALLACH and THÖLKE), A., i, 799.
- $C_{12}H_{11}O_3N$, and its ethyl ester, from γ -keto- $\alpha\delta$ -diphenyliminopentane- α -carboxylic acid (SIMON), A., i, 423.
- $C_{12}H_{12}O_4N_2$, and its ethyl ester, salts, and ethyl derivative, from the action of sulphuric acid on diethyl β -anilinotricarballylic acid nitrile (SCHROETER and KIRNBERGER), A., i, 531.
- $C_{12}H_{14}O_5N_2$, from the action of potassium hydroxide on $C_{13}H_{16}O_5N_2$ (PERKIN), P., 1901, 204.
- $C_{12}H_{18}O_2$, and its ethyl ester, from carvenone and ethyl bromoacetate (WALLACH and THÖLKE), A., i, 723, 800.
- $C_{12}H_{24}O_3$, and its amide and nitrile, from methyl nonyl ketone (CARETTE), A., i, 346.
- $C_{12}H_{25}O_2N$, from the hydrolysis of the nitrile, $C_{12}N_2ON$ (CARETTE), A., i, 346.
- $C_{13}H_{16}O_4$, and $C_{13}H_{18}O_3$, from the aldol, $C_{12}H_{14}O_2$ (MICHEL and SPITZAUER), A., i, 292.
- $C_{13}H_{16}O_8N_2$, methyl ester, from the action of nitric acid on methyl dimethylacetooacetate (PERKIN), P., 1901, 204.
- $C_{13}H_{17}O_3N$, from β -methyladipic anhydride and aniline (SPERANSKI), A., i, 384.
- $C_{13}H_{22}O_8$, and its salts, from the condensation of butyric acid (ALBO), A., i, 10, 200.
- $C_{14}H_{14}O_4N_2$, ethyl ester, from phenylhydrazine and ethyl $\alpha\beta$ -diacetyl-succinate (v. MEYER, FRIESSNER, and v. FINDEISEN), A., i, 658.
- $C_{14}H_{19}O_6N$, from the base $C_{14}H_{18}O_4N_2$ (FREUND and BAMBERG), A., i, 556.
- Acid**, $C_{15}H_{20}O_6N_2$, ethyl ester, from ethyl ethylenemalonate and ethyl β -aminocrotonate (KNOEVENAGEL and BRUNSWIG), A., i, 641.
- $C_{16}H_{11}O_2N$, from fluorenonequinoline (DIELS and STAELIN), A., i, 830.
- $C_{16}H_{17}O_6N$, from the oxidation of corydalic acid by permanganate (DOBIE and LAUDER), T., 156.
- $C_{17}H_{16}O_3$ (two), from the reduction of α -oxy- β -phenyl- γ -benzylbutyrolactone and of α -oxy- γ -phenyl- β -benzylidenebutyrolactone (ERLENMEYER), A., i, 543.
- $C_{17}H_{21}O_5N$, from cinnamic acid piperidine and ethyl sodiomalonate (VORLÄNDER), A., i, 310.
- $C_{17}H_{34}O_2$, from olive oil (HOLDE), A., i, 257.
- $C_{18}H_{15}O_4N$, $C_{18}H_{16}O_5N$, and $C_{18}H_{17}O_5N$, from cinnamannilide and ethyl sodiomalonate (VORLÄNDER), A., i, 311.
- $C_{19}H_{16}O_5N_2$, from benzidinedicarboxylic acid (MOIR), P., 1902, 196.
- $C_{22}H_{20}O_3$, from α -truxillie acid (RIIBER), A., i, 617.
- $C_{22}H_{28}O_8N_2$, or $C_{22}H_{30}O_8N_2$, and $C_{44}H_{64}O_{15}N$, from the action of nitric acid on digitogenic acid (KILIANT and MERK), A., i, 46.
- $C_{23}H_{28}O_6N_2$, ethyl ester, from ethyl cumylenemalonate and ethyl β -aminocrotonate (KNOEVENAGEL and BRUNSWIG), A., i, 641.
- Acid-albumin**. See Albumin.
- Acid amides**. See Amides.
- Acid anhydrides**. See Anhydrides.
- Acid chlorides**, preparation of (CHEMISCHE FABRIK VON HEYDEN), A., i, 93, formation of, by means of thionyl chloride (MEYER), A., i, 31.
- action of, on aldehydes, in presence of zinc chloride (DESCUDÉ), A., i, 149, 339, 451.
- interaction of, with aldehydes and ketones (LEES), P., 1902, 213.
- action of, on methyl and ethyl sodio-acetoacetate (BONGERT), A., i, 73.
- action of, on trioxymethylene (DESCUDÉ), A., i, 149, 339, 738.
- Acid imides**, compounds of, with mercury and with silver (LEY and SCHAEFER), A., i, 358.
- Acidimetry**, normal alkalis and indicators in (JUNGCLAUSSEN), A., ii, 46.
- of phosphoric acid (BERTHELOT), A., ii, 255.
- Acid solutions**, methods of standardising (HOPKINS), A., ii, 46.
- Acids** from the oil of *Asarum canadense* (POWER and LEES), T., 72; P., 1901, 210.

- Acids of *Bignonia Catalpa*** (PIUTTI and COMANDUCCI), A., ii, 523.
 from eucalyptus oil (SMITH), A., i, 103.
 from lichens (ZOPF), A., i, 465, 789 ; (HESSE), A., i, 680.
 from oil of rue (POWER and LEES), T., 1589 ; P., 1902, 193.
 synthesis of, by means of magnesium organic compounds (GRIGNARD), A., i, 142.
 formation of, in autolysis of the liver (MAGNUS-LEVY), A., ii, 517.
 determination of the affinities of (DAWSON and GRANT), T., 513 ; P., 1902, 68.
 bases, and salts, dissociation of, at different temperatures (JONES and DOUGLAS), A., ii, 59.
 esterification of, with phenols (BAKUNIN), A., i, 370.
 microchemical test for alkalis and (EMICH), A., ii, 45.
- Acids of the acetic series**, solubilities of the calcium salts of the (LUMSDEN), T., 350 ; P., 1902, 31.
 compounds of, with beryllium (LACOMBE), A., i, 418.
- Acids, carboxylic**, syntheses of (HOUBEN and KESSELKAUL), A., i, 583.
- Acids of complex function**, colorimetric titrations of (BERTHELOT), A., i, 199.
- Acids, dibasic**, dissociation of (WEGSCHEIDER), A., ii, 643.
- Acids, fatty**, in contaminated waters (CAUSSE), A., ii, 360.
 electrolysis of salts of the, formation of alcohols and aldehydes by the (HOFER and MOEST), A., i, 736.
 decomposition of (NEF), A., i, 8.
 halogen derivatives of (FREER), A., i, 200.
 α -, β -, γ -, and δ -halogen derivatives of, velocity of esterification and electrical conductivity of (LICHTY), A., i, 201.
 glycerol esters, action of superheated steam on (KLIMONT), A., i, 202.
 higher, formation of, from sugar (MAGNUS-LEVY), A., ii, 614.
 action of, on alkali carbonates (KLIMONT), A., i, 132.
 volatile, amount of, in butter fat (VIETH), A., ii, 348.
- Acids, organic**, in some South European fruits (BORNTRAEGER), A., ii, 347.
 synthesis of (WALTHER), A., i, 203.
 history of the electrolysis of (BUNGE), A., i, 338.
 influence of constitution on the affinity constants of (WEGSCHEIDER), A., ii, 494.
- Acids, organic**, action of, on antimony (MORITZ and SCHNEIDER), A., i, 703.
 action of, on antimony oxides (JORDIS), A., i, 740.
 action of phosphorus trichloride on (DELACRE), A., i, 527.
 compounds of, with antimony pentachloride (ROSENHEIM and STELLMANN), A., i, 68 ; (ROSENHEIM and LOEWENSTAMM), A., i, 358.
 compounds of, with bismuth (PRUNIER), A., i, 76.
 non-volatile, amount of, in tobacco leaves at various periods of their growth (KISSLING), A., ii, 625.
- Acids, soluble**, estimation of, in butter (VANDAM), A., ii, 541.
- Acids, $\gamma\delta$ -unsaturated monobasic**, preparation of (SOLONINA), A., i, 256.
- Acids, unsaturated dicarboxylic**, from ketones and ethyl succinate (STOBBE), A., i, 459 ; (STOBBE and NIEDENZU), A., i, 460 ; (STOBBE, STRIGEL, and MEYER), A., i, 461.
- Acids, unsaturated, of the sorbic acid series**, and their transformation into cyclic hydrocarbons (DOEBNER), A., i, 598.
- Acids, volatile**, formation of, in alcoholic fermentation (SEIFERT), A., ii, 98.
 estimation of, in wine (CURTEL), A., ii, 55 ; (ROCQUES and SELLIER), A., ii, 111 ; (SELLIER ; MÖSLINGER), A., ii, 180 ; (DUGAST), A., ii, 235.
- Acids, weak**, salts of, action of methyl alcohol on (WISLICENUS and STOEBER), A., i, 202.
- Acids** (or their derivative or salts). See also :—
 Acetaldehyde- $\beta\beta$ -disulphonic acid.
 Acetic acid.
 Acetoacetic acid.
 Acetone- β -naphthylcarbamic acid.
 Acetone- $\alpha\gamma\gamma$ -trisulphonic acid.
 Acetophenone-phenyl- and -o-tolyl-carbamic acids.
 α -Acetoxy- γ -phenylcrotonic acid.
 Acetylcohenillic acid.
 Acetylhydroxamic acid.
 Acetyl-m-hydroxyphenyl-p-tolyl-amin.sulphonic acids.
 Acetylindoxylic acids.
 Acetylmethylantranilic acid.
 γ -Acetyl.methylbutyric acids.
 5-Acetyl-4-methylpyrazole-3-carboxylic acid.
 5-Acetyl-4-methylpyrazoline-3:5-di-carboxylic acid.
 α -Acetyl- γ -phenylacetooacetic acid.
 γ -Acetyl- γ -phenylbutyrolactone- β -carboxylic acid.
 α -Acetylphenylcarbamic acid.

Acids. See :—

Acetylphenylmalonamic acid.
 5-Acetyl-4-phenylpyrazoline-3:5-dicarboxylic acid.
 Acetyl*iso*propylbutyric acid.
 Acetyl*d*-thiocarbamic acid.
 Aconitic acids.
 Acylecanoacetic acids.
 Acylthiocarbamic acids.
 Adipic acids.
 Afelemic acid.
 Agaric acid.
 Agaric acid.
 Alanine.
 Alanylalaninecarboxylic acid.
 β -Aldehydic acids.
 8-Aldehydonaphthoic acid.
 Alkylmalonic acid.
 Allophanic acid.
 Aminoximeoxalic acid.
 m -*iso*Amylaminobenzoic acid.
 m -*iso*Amylaminohexahydrobenzoic acid.
 Angelic acid.
 Anhydrobrazilic acid.
 β -Anilinocrotonic acid.
 β -Anilino- β -cyanobutyric acid.
 Anilinoethylenetricarboxylic acid.
 2-Anilinohydrocarbostyryl-2-carboxylic acid.
 Anilinomalic acid.
 Anilinomethylene malonic acid.
 2-Anilino-3:5-*dinitro*benzoic acid.
 Anilinophosphamic acid.
 Anilino-*p*-toluidinophosphoric acid.
 p -Anisidinomethylene malonic acid.
 Anisolepropionic acid.
 α -Anisylideneklevulic acid.
 Anisylidenemalic acid.
 Anthragallolsulphonic acid.
 Anthranilic acid.
 Anthranilic-acetonitrilic acid.
 Anthraquinonedisulphonic acid.
 Anthraquinonesulphonic acids.
 Apionic acid.
 Apophyllenic acid.
 d -Arabonic acid.
 Aromadendric acid.
 Artemic acid.
 Asparagine.
 Benzaldehydophenylhydrazone-*p*-sulphonic acid.
 Benzenepentacarboxylic acid.
 Benzenesulphinic acid.
 Benzenesulphonic acid.
 Benzenethiosulphonic acids.
 Benzenoid aminosulphonic acids.
 Benzhydroxamic acid.
 Benzidinedimalonic acid.
 Benzilic acid.
 Benzoic acid.
 Benzoic-acetic acid.

Acids. See :—

Benzoic-toluic acids.
 Benzosulphurylphenylglycinecarboxylic acid.
 Benzoylacetic acid.
 Benzoylacetooacetic acid.
 Benzoylaminohexoic acids.
 Benzoylglycylaminoacetic acid.
 Benzoylglycylglycylaminoacetic acid.
 Benzoylglycylglycylglycylaminoacetic acid.
 Benzoyldimethylmalonic acid.
 N -Benzoylindoxylic acid.
 Benzoyl-*p*-nitrobenzoylacetic acid.
 β -Benzoylpicolinic acid.
 Benzoyltartaric acid.
 Benzoyl*d*-thiocarbamic acid.
 β -Beuzylaminocrotonic acid.
 Benzylaniline-*p*-sulphonic acid.
 Benzylbromomalonic acid.
 Benzylcarboxyacomic acid.
 β -Benzyl-*o*-hydrzinobenzoic acid.
 Benzylideneacetophenone-acetoacetic acid.
 α -Benzylidene glutaconic acid.
 Benzylidene-*o*-hydrzinobenzoic acid.
 α -Benzylidenekevulic acid.
 Benzylidene malonic acid.
 Benzylidene malonic acid.
 Benzylmethylacetic acid.
 Benzylphthalamic acid.
 Berberidic acid.
 Berberonic acid.
 Bisdinaphthaxanthylsulphonic acid.
 Bismuthigalic acid.
 Bismuthogallic acid.
 Borneolglycuronic acid.
 Brazilic acid.
 Brazilinic acid.
 Butanedicarboxylic acids.
 Butanepentacarboxylic acid.
 Butanetetracarboxylic acids.
 Butanetricarboxylic acids.
 α -*iso*Butyl- β -*iso*amylacetic acid.
 Butylenehexacarboxylic acid.
 Butylene-tri- and -penta-carboxylic acids.
 Butylenetetracarboxylic acids.
 α -*iso*Butyl- β -*isopropyl*butyric acid.
 α -*iso*Butyl- β -*isopropyl*- γ -hydroxybutyric acid.
 iso Butylpyruvic acid.
 Butyric acids.
 Butyrylacetoacetic acid.
 Butyrylbutyric acid.
 Butyrylpyruvic acid.
 Cacodylic acid.
 Caffetannic acid.
 Calameonic acid.
 Camphenolglycuronic acid.
 Campholenic acids.
 i - α -Campholytic acid.

Acids. See :—

Camphonic acid.
 Camphononic acid.
 β -Camphoramidic acid.
 β -Camphoranic acid.
 Camphorenic acid.
 Camphoric acid.
 Camphoronic acid.
*iso*Camphoronic acid.
 Camphorsulphonic acid.
 Carbaminoglycylglycine.
 Carbethoxyphenylglycinecarboxylic acid.
 Carbonyldiglycylglycine.
 Carbonyldihydroxydinaphthylamine-disulphonic acids.
 Carbonyldiphenylglycine.
 σ -Carboxyanilino- α -phenylacetic acid.
 Carboxydimethoxybenzoylformic acid.
 Carboxydimethoxybenzylformic acid.
 2-Carboxy-5:6-dimethoxyphenoxy-acetic acid.
 Carboxyglutaric acid.
 2-Carboxy-5-methoxyphenoxyacetic acid.
 Carboxymethoxyphenoxyalactic acid.
 3-Carboxy-2-methylfurfuran-4-acetic acid.
 Carboxyphenylarsenic acids.
 Carboxytolylarsenic acids.
 Carvomentholacetic acid.
 Caseonic acid.
 Chondroitinsulphuric acid.
 Chromicyanic acid.
 Chromone-2-carboxylic acid.
 Chrysodiphenic acid.
 Chrysophanic acid.
 Cinchomeron-3-amic acid.
 Cinchomeronic acid.
 Cinchomerylglycine.
 Cinchotinesulphonic acid.
 Cinnametylacrylic acid.
 Cinnamic acids.
 Cinnamoylaminooacetic acid.
 Cinnamylidenemalonic acid.
 Citralideneacetic acid.
 Citralideneacetoacetic acids.
 Citrarialic acid.
 Citric acid.
 Cobalticyanic acid.
 Cobaltioxalic acid.
 Coccic acid.
 Cochenillie acid.
 Corydalinesulphonic acid.
 Corydic acid.
 Corydilic acid.
 Cotarnic acid.
 Coumarilic acid.
 β -Cresotic acid.
 Crotonic acid.
 ψ - and *p*-Cumylarsenic acids.
 Cyanic acid.

Acids. See :—

Cyanuric acid.
*iso*Cyanuric acid.
 Decenoic acid.
 Decoic acids.
 Dehydrocamphoric acid.
 Dehydromucic acid.
 Desmotroposantous acid.
 Desylcinnamic acid.
 Desyleneacetic acids.
 Desylenemalonic acid.
 Dhurrinic acid.
 $\gamma\gamma$ -Diacetylbutyric acid.
 $\beta\beta$ -Diacetyl- α -methylpropionic acid.
 Diacetylorthonitric acid.
 Dianilinomalonic acid.
 2:6-Dianilinopyridine-4-carboxylic acid.
 Di-*o*-anisylidihydrazonecyanoacetic acid.
 Di-*o*-anisylidihydrzonemalonic acid.
 Dibenzoylmesitylenic acids.
 Dibenzoyltartaric acid.
 Dibenzoyltrimesic acid.
 Dibenzoyluvitic acids.
 Dibenzylideneacetone-acetoacetic acid.
 Dibenzylidenehexyllic acid.
 Dicarboxyaconitic acid.
 Dicarboxyglutaconic acid.
 Dicarboxyglutaric acid.
 Dicarboxyphenylarsenic acid.
 3:5-Dicarboxypyrrrole-2:4-diacetic acid.
 Diethylaminoacetic acid.
 Diethylarsinibenzoic acid.
 p -Diethylarsinobenzoic acid.
 s - α -Diethylglutaric acid.
 Diethylglycollic acid.
 Diethyl- α -naphthylamine-5-sulphonic acid.
 Diethyl-*o*-toluidine-4-sulphonic acid.
 Digitic acid.
 Digitogenic acid.
 Digitoin acid.
 Dihydrobrazilic acid.
 α -Dihydrocampholenic acid.
 Dihydrocampholytic acids.
 Dihydrocamphoric acid.
 Dihydrocarbostyril-4-acetic acid.
 Dihydrocornicicularic acid.
 Dihydrofencholenic acid.
 Dihydrolutidinedicarboxylic acid.
 Dihydro-2-lutidone-3:5-dicarboxylic acid.
 $\Delta^{1:5}$ -Dihydro-*m*-tolylacetic acid.
 2:6-Dihydroxycinchomeronic acid.
 2:2'-Dihydroxydiphenyl-di- and -tetrasulphonic acids.
 3:4-Dihydroxyhydratropic acid.
 1:1'-Dihydroxy-6:6'-ketoethylenedi-naphthylamine-3:3'-disulphonic acid.

Acids. See :—

4:7-Dihydroxy-6-methoxydihydro-
quinaldine-5-carboxylic acid.
 $\gamma\delta$ -Dihydroxy- γ -methyl- γ -ethylpyro-
tartaric acid.
2:3-Dihydroxynaphthalene-6:8-di-
sulphonic acid.
Di-3- and -o-hydroxy-2-phenylquin-
oxalinesulphonic acid.
Dihydroxyisopropylhypophosphorous
acid.
2:6-Dihydroxypyridine-3:4-di- and
-3:4:5-tri-carboxylic acids.
1:2-Diketopentamethylene-3:5-dicar-
boxylic acid.
Dimethoxybenzoylpropionic acid,
5:7-Dimethoxychromone-2-carboxylic
acid.
4:6-Dimethoxycoumaric acid.
4:6-Dimethoxycoumarilic acid.
3:4-Dimethoxyhydratropic acid.
Dimethoxymethylenedioxhydr-
atropic acid.
Dimethylacetocetic acid.
Dimethylacrylic acid.
 $\beta\beta$ -Dimethyladipic acid.
Dimethylaminoacetic acid.
p-Dimethylaminobenzylidene-p-
aminobenzenesulphonic acid.
 γ -Dimethylaminobutyric acid.
Dimethylaminophenylarsenic acid.
 β -Dimethylaminopropionic acid.
Dimethylaniline-6-carboxylic acid.
Dimethylaniline-6-sulphonic acid.
Dimethyl dibromoethylacetic acid.
 **$\alpha\alpha$ -Dimethylbutane- $\alpha\beta\delta$ -tricarboxylic
acid.**
 $\beta\gamma$ -Dimethyl- α -isobutylvaleric acid.
 $\beta\gamma$ -Dimethylbutyrolactoneacetic acid.
 $\beta\gamma$ -Dimethylcrotonolactoneacetic acid.
3:5-Dimethyl- Δ^{15} -dihydrophenyl-
acetic acid.
**2:4-Dimethylfurfuran-3-carboxylic
acid.**
 $\alpha\alpha$ -Dimethylglutaconic acid.
Dimethylglutaric acids.
**1:3-Dimethyl-5-cyclohexanecarboxylic
acid.**
**1:1'-Dimethylcyclohexanemalicnic
acid.**
3:5-Dimethylcyclohexane-3-ol-1-one-
4:6-dicarboxylic acid.
Dimethylhomophthaliccarboxylic acid.
Dimethylmalonic acid.
**Dimethyl- α -naphthylaminesulphonic
acids.**
2:6-Dimethylnicotinic acid.
Dimethylloxazolepropionic acids.
**Dimethylphloroglucinolcarboxylic
acid.**
Dimethylphthalide-acetic, -bromo-
-tetronic and -tetronic acids.

Acids. See :—

**$\alpha\beta$ -Dimethylpropanetricarboxylic
acid.**
2:4-Dimethylpyridine-3:5-di- and
-3:5:6-tri-carboxylic acids.
Dimethylpyronedicarboxylic acid.
4:6-Dimethyl-1:2-pyrene-5-carboxylic
acid.
Dimethylpyruvic acid.
 $\gamma\epsilon$ -Dimethylsorbic acid.
Dimethylsuccinic acid.
Dimethyltricarballylic acids.
**Dimethyltrimethylenedicarboxylic
acid.**
Dimethylvinylacetic acid.
Dimethylvioluric acid.
1:4-Dioxyopyrinatecarboxylic acid.
Dioxyalrylic acid.
Dioxytaric acid.
Diphenylacetic acid.
 $\gamma\delta$ -Diphenylallylacetic acid.
Diphenyldihydrazonecyanooacetic acid.
Diphenyldihydrazonemalonic acid.
 **$\alpha\beta$ -Diphenyl- $\alpha\alpha$ -dimethylpropionic
acid.**
Diphenyl-4:4'-disulphonic acid.
Diphenyleneketonecarboxylic acid.
**Diphenylenequinoxalinesulphonic
acid.**
Diphenylglycollic acid.
**Diphenylmethane-3:3'-dicarboxylic
acid.**
**Diphenylmethylpyrrolecarboxylic
acids.**
 $\gamma\delta$ -Diphenyl- γ -pentenoic acid.
1:4-Diphenylpyrrolidone-mono- and
-5:5-di-carboxylic acids.
Diphenyltetramethylenebisbromo-
methyleneacetic acid.
**Diphenyltetramethylenebis(methylene-
malonic acid).**
Diphenyltetrenecarboxylic acid.
Diphenyltetrenedicarboxylic acid.
Diphenylthiocyanooacetic acid.
 $\alpha\beta$ -Diphenylvaleric acid.
Dipropionylorthonitric acid.
 $\alpha\gamma$ -Diisopropyltricarballylic acids.
Dipyridoysuccinic acids.
Disulphobenzoic acid.
Di-o-tolyldihydrazonecyanooacetic acid.
Di-o-tolyldihydrazonemalonic acid.
Diurethanepyruvic acid.
d-Erythronic acid.
Ethanedicarboxylic acid.
Ethanetetracarboxylic acid.
Ethoxyanilinophosphoric acid.
**4-Ethoxy-4-isobutylquinolinotriolic
acid.**
Ethoxydeoxybenzoiccarboxylic acids.
**4-(or 5)-Ethoxydibenzyl-2-carboxylic
acid.**
4-Ethoxy-2:6-dimethylnicotinic acid.

Acids. See :—

δ-Ethoxy-β-hexanone-ε-carboxyl-
 amide-γ-carboxylic acid.
 3-Ethoxyphenanthrene-10-carboxylic
 acid.
 p-Ethoxyphenylacetic acid.
 α,p-Ethoxyphenyl-o-amino- and -o-
 -nitro-cinnamic acids.
 p-Ethoxyphenylsuccinamic acid.
 β-Ethoxyphthalylacetic acid.
 4-(or 5)-Ethoxystilbene-2-carboxylic
 acid.
 p-Ethoxysuccinianilic acid.
 Ethoxysulphinic acid.
 Ethoxy-p-toluidinophosphoric acid.
 Ethylbutyrylacetic acid.
 Ethylcarboxyaconitic acid.
 Ethylenebis-1-tetrahydroisoquinoline-
 1-acetic acid.
 Ethylenedicarboxylic acid.
 Ethylhexoylacetic acid.
 Ethylideneacetocetic acid.
 Ethylidenebisacetocetic acid.
 α-Ethylidenediglutamic acid.
 α-Ethylideneglutaric acid.
 i-Ethylidenelactic acid.
 Ethylmalonic acid.
 3-Ethylpyridine-4-carboxylic acid.
 1-Ethyltetrahydroquinolinocarboxylic
 acid.
 Eudesmic acid.
 Euxanthic acid.
 Ferribenzoylacetic acid.
 Ferricyanic acid.
 Ferrioxalic acid.
 Ferrisalicylic acid.
 Ferrocyanic acid.
 Filicic acid.
 Flavaspidic acids.
 Fluorenecarboxylic acid.
 Fluorene-oxalic acid.
 Fluorenone-5-carboxylic acid.
 Formic acid.
 Formylphenylacetic acid.
 Fumaric acid.
 Furfurandicarboxylic acid.
 Furfursulphonic acid.
 Furfurylcarbamic acid.
 β-Furfurylglyutaric acid.
 Galactonic acid.
 Gallic acid.
 Gitonic acid.
 Glomellie acid.
 Glucophosphoric acid.
 Glutaconic acid.
 Glutamic acid.
 Glutaric acids.
 Glycero-arsenic acid.
 Glycerophosphorous acid.
 Glycine.
 Glycocynamine.
 Glycollic acid.

Acids. See :—

Glycuronic acid.
 Glycylglycine.
 Glycylglycinecarboxylic acid.
 Glycylglycyl-leucinecarboxylic acid.
 Glyoxylic acid.
 Guaiacoloxymutaric acid.
 Guaiacolsulphonic acid.
 Hæmatoxylinic acid.
 Hæmotricarboxylic acids.
 Hemipinic acids.
 cycloHeptane carboxylic acid.
 Heptanedicarboxylic acid.
 cycloHeptane-1-olacetic acid.
 Heptane-αγγεη-hexacarboxylic acid.
 Heptenoic acid.
 Heptoic acid.
 Hexahydrobenzoic acid.
 Hexahydrolutidinecarboxylic acid.
 Hexahydro-o-tolnic acid.
 cycloHexanecarboxylic acid.
 Hexanedicarboxylic acids.
 Hexanetricarboxylic acid.
 Hexenoic acid.
 Hexoic acids.
 Hexoylacetic acid.
 Hexoylacetoacetic acid.
 sec-Hexylacetooacetic acid.
 cycloHexylbenzenesulphonic acid.
 Hexylbutyrylacetic acid.
 Hippuric acid.
 Homo-allantoic acid.
 Homonicotinic acid.
 Homoparacopainic acid.
 Homopilomalic acid.
 isoHydrochelidonic acid.
 Hydrocinnamic acid.
 Hydroxamic acids.
 Hydroxamino-oximinomalonic acid.
 m-Hydroxy-o-isoamylbenzoic acid.
 5-Hydroxy-2-anilinonaphthalene-7-
 sulphonic acid.
 Hydroxyanthraquinonesulphonic
 acids.
 Hydroxybenzoic acids.
 o-Hydroxybenzylideneacetooacetic acid.
 Hydroxybutyric acids.
 β-Hydroxycamphoronic acid.
 4-Hydroxyisocarbostyrilphthaloylic
 acid.
 p-Hydroxycinnamic acid.
 Hydroxycomenic acid.
 p-Hydroxycumylacetic acid.
 Hydroxydehydroisophotosantonic acid.
 β-Hydroxy-αα-diethylglutaric acid.
 4-Hydroxydihydrofencholenic acid.
 β-Hydroxy-αα-dimethylglutaric acid.
 6-Hydroxy-2:5-dimethylpyridine-3-
 carboxylic acid.
 Hydroxydiphenylacetic acid.
 Hydroxydiphenylaminesulphonic
 acids.

Acids. See :—

2-Hydroxy-5-ethoxybenzoylpyruvic acid.
α-Hydroxy-4-(or 5)-ethoxydibenzyl-2-carboxylic acid.
m-Hydroxy-*o*-ethylbenzoic acid.
 Hydroxyglutaric acids.
m-Hydroxyhexahydrobenzoic acid.
p-Hydroxyhexahydrotoluic acid.
 6-Hydroxy-2-keto- $\Delta^{3:5}$ -dihydropyridinecarboxylic acid.
 1-Hydroxylaminoanthraquinone-2-sulphonic acid.
 2-Hydroxy-4:6-lutidine-3-carboxylic acid.
o-Hydroxymandelic acid.
o-Hydroxymercurisalicylic acid.
 6-Hydroxy-4-methoxybenzoylpropionic acid.
 2-Hydroxy-4-mono- and -4:6-dimethoxybenzoylpyruvic acids.
p-Hydroxy-*m*-methoxyphenylmethanebis-2:5-dimethylpyrrole-3-carboxylic acid.
β-Hydroxy-**β**-methyl-**α**-ethylbutyric acid.
 2-Hydroxy-4-methylquinoline-3-carboxylic acid.
 Hydroxymethylsalicylic acid.
 6-Hydroxymethyl-2:3:4-trimethyl-quinolinic acid.
o-Hydroxynaphthoic acids.
 2-Hydroxy-3-naphthoic acid.
 1-Hydroxy-2-naphthoylpyruvic acid.
 4-Hydroxynicotinic acid.
o-Hydroxyphenylmethanebis-2:5-dimethylpyrrole-3-carboxylic acid.
β-4-Hydroxyphenyl-**β**-methoxypropionic acid.
β-4-Hydroxyphenylpropionic acid.
m-Hydroxyphenyl-*p*-tolylaminesulphonic acids.
m-Hydroxyphenyl-*p*-tolylnitroso-aminosulphonic acid.
 4-Hydroxypythalic acid.
β-Hydroxy-**β**-piperonyl-**α**-dimethyl-propionic acid.
 Hydroxypivalic acid.
α-Hydroxypropionic acid.
ε-Hydroxy-**β**-isopropylheptoic acid.
 Hydroxyisopropylhypophosphorous acid.
 Hydroxyisopropylphosphinic acid.
 Hydroxypyrolidine-2-carboxylic acid.
 Hydroxyterephthalic acid.
 2-Hydroxy-*m*-toluic acid.
 8-Hydroxy-2-*o*-tolylaminonaphthalene-6-sulphonic acid.
β-Hydroxy-**β**-*p*-tolyl-**αα**-dimethylpropionic acid.
β-Hydroxy-**β** $\gamma\gamma$ -trimethylpentanedioic acid.

Acids. See :—

γ -Hydroxyundecanoic acid.
 Hydroxyvaleric acids.
p-Hydroxy-*p*-xylylacetic acid.
 5-Hydroxy-2-*o*-xylylaminonaphthalene-7-sulphonic acid.
 Illuric acid.
 Indigotinsulphonic acid.
 Indole-2-carboxylic acid.
 Indoneacetic acids.
 Indophenazinecarboxylic acid.
 Iononecarboxylic acids.
 Isatoic acid.
 Isoprenic acid.
 Kairolinecarboxylic acids.
 Ketocampholenic acid.
 Ketodihydrocampholenic acid.
γ-Keto-**αδ**-diphenyliminopentane-**α**-carboxylic acid.
 Keto-3:5-diphenyl- Δ^2 -tetrahydrobenzene-6-carboxylic acid.
 Ketoheyltetronic acid.
 2-Ketomethylhexamethylenecarboxylic acid.
α-Keto-**β**-methylhexolactone-**γ**-carboxylic acid.
 2-Ketomethylisopropylhexamethylene carboxylic acid.
 1-Keto-5-phenyl-3-cinnamenal- Δ^2 -tetrahydrobenzene-6-carboxylic acid.
ε-Keto-**β**-isopropylheptoic acid.
δ-Keto-**β**-isopropylhexoic acid.
 Ketotariric acid.
 Lactic acids.
 Lauric acid.
 Lauronolic acid.
o-Leucauraminobenzoic acid.
 Leucine.
 Leucylleucine.
 Lupinic acid.
 Lutidinedicarboxylic acid.
ψ-Lutidostyryl-5-carboxylic acid.
 Lysalbic acid.
 Malamic acid.
 Malic acid.
β-isoMalic acid.
 Malondihydroxamic acid.
 Malonic acid.
 Malontetranilic acid.
 Mancopalenic acid.
 Mancopalolic acid.
 Manelemic acids.
 Mellie acid.
 Mentholacetic acid.
 Mentholglycuronic acid.
 Mercaptothionic acid.
 Mercuribenzoic acid.
β-Metacopaivic acid.
 Metanilic acid.
 Methanedisulphonic acid.
 Methenyldianthranilacetic acid

Acids. See :—

Methoxyanilinophosphoric acid.
 7-Methoxychromone-2-carboxylic acid.
 4-Methoxy-4-ethoxyquinol-1-nitrolic acid.
p-Methoxyhydratropic acid.
 2-Methoxyphenanthrene-9-carboxylic acid.
 α -Methoxyphthalic acid.
 ρ -Methoxysalicylic acid.
 Methoxysulphinic acid.
 Methoxy-*p*-toluidinophosphoric acid.
 Methylanthranilic acid.
 Methylarsenic acid.
 δ -Methyl- α -isobutylhexoic acid.
 Methylcamphecarboxylic acid.
 Methylcarboxyaconic acid.
 Methylene- α -alanine.
 Methylenabisanthranilic acid.
 Methylenecitric acid.
 Methylenedi-2-hydroxy-3-naphthoic acid.
 Methylenedimethylsuccinic acid.
 Methylenedioxypyrenylmethanebis-2:5-dimethylpyrrole-3-carboxylic acid.
 Methylenedisuccinic acid.
 γ -Methyl- γ -ethylaconic acid.
 Methylethylaminoacetic acid.
 5-Methyl-3-ethyl- $\Delta^{3:5}$ -dihydrophenylacetic acid.
 γ -Methyl- γ -ethylidene pyrotartaric acid.
 γ -Methyl- γ -ethylparaconic acid.
 Methylfluoreneoxalic acid.
 Methylhexahydrocincinheromic acid.
 1-Methylcyclohexane-3-acetic and -3-malonic acids.
 Methylcyclohexanecarboxylic acids.
 1-Methylcyclohexane-3-ol-3-acetic acid.
 1-Methylcyclohexane-3-ol-3-butyric acid.
 1-Methylcyclohexane-3-ol-3-propionic acid.
 1-Methylcyclo- Δ^3 -hexene-3-acetic acid.
 Methylhexenoic acids.
 δ -Methylhexoic acid.
 Methylhexylpyruvic acid.
N-Methylindoxyllic acid.
 Methylmalonamic acid.
 Methylnaphthylaminesulphonic acids.
 Methylparaconic acid.
 1-Methylcyclopentane-3-carboxylic acid.
 β -Methylcyclopentanemethylidene-carboxylic acid.
 β -Methylcyclopentanolacetic acid.
 β -Methyl- δ -pentanone- $\alpha\alpha$ -dicarboxylic acid.
 Methylphloroglucinolcarboxylic acid.
 β -Methylpimelic acid.

Acids. See :—

1-Methylpiperidine-2:6-dicarboxylic acid.
 α -Methyl- δ -isopropyladipic acid.
 δ -Methyl- α -isopropylhexoic acid.
 4-Methylpyrazoledicarboxylic acid.
 Methylpyridinecarboxylic acids.
 Methylpyridinetricarboxylic acid.
 2-Methyl-6-pyridylacetic acid.
 4-Methylpyrimidine-6-carboxylic acid.
 2-Methylpyrrole-3:4:5-tricarboxylic acid.
 1-Methylpyrrolidine-2-mono- and -2:5-di-carboxylic acids.
 Methylrubazonic acid.
 5-Methylsalicylic acid.
 γ -Methylsorbic acid.
 1-Methyltetrahydroquinolinecarboxylic acids.
 Methyltetramethylenedicarboxylic acid.
 Methyltetronic acid.
 Methylthiocarbamic acid.
 Methylthiocyanomalic acid.
 α -Methyltricarballylic acids.
 β -Methyluracil-4-carboxylic acid.
 δ -Methyluric acid.
 Montanic acid.
 Mucobromic acid.
 Mucochloric acid.
 Muconic acid.
 α -Naphthachromonecarboxylic acid.
 Naphthaldehydeic acid.
 Naphthalene-1:2-dicarboxylic acid.
 Naphthalenedisulphonic acid.
 Naphthalenoidaminosulphonic acids.
 Naphthalene-8-sulphonic acid.
 Naphthaonylacetic acid.
 Naphthene carboxylic acids.
 Naphthoic acids.
 Naphtholsulphonic acids.
 Naphthoxyfumaric acids.
 β -Naphthylamine-8-sulphonic acid.
 β -Naphthylamino-3-naphthoic acid.
 Nicotinic acid.
 iso Nicotinic acid.
 Niobioxalic acid.
 Nonanedicarboxylic acid.
 Nonanetricarboxylic acids.
 Nonoic acid.
 Norbrazilinic acid.
 Norisosaccharic acid.
 Ochrölechiasic acid.
 Octanedicarboxylic acid.
 Opianic acid.
 Ornithine.
 Orthoformic acid.
 Osmyloxalic acid.
 Oxalacetic acid.
 Oxalic acid.
 Oxalodihydroxamic acid.
 Oxaluric acids.

Acids. See :—

Oximinocyanooacetic acid.
 Oximinomalonic acid.
 Oximinomalon-o-tolylic acid.
 Oximino-oxalic acid.
 α -Oximinovaleric acid.
 γ -Oxydiethylarsinibenzoic acid.
 Oxyfulminic acid.
 Oxymethylpyridonecarboxylic acid.
*allo*Oxyproteic acid.
 Palmitic acid.
 Papaveric acid.
 Paracopaiic acid.
 Pentanedicarboxylic acids.
 Pentanexacarboxylic acid.
*cyclo*Pentanemethylidene carboxylic acid.
 Pentanetetracarboxylic acids.
 Pentanetricarboxylic acids.
*cyclo*Pentanolacetic acid.
 Pentenedicarboxylic acids.
 Pentenetracarboxylic acid.
 Pentenoic acids.
 Pepsinic acids.
*iso*Persulphocyanic acid.
 Phellandrenolglycronic acid.
 Phenanthraquinonecarboxylic acids.
 Phenanthraquinonesulphonic acid.
 Phenanthrene-9-carboxylic acid.
 Phenanthrenesulphonic acids.
 Phenanthroic acids.
 Phenanthroxyacetic acids.
 ρ -Phenetylthiohydantoinic acid.
 Phenolglycronic acid.
 Phenol-6-sulphonic acid.
 Phenolsulphuric acid.
 Phenylacetic acid.
 Phenylacetic-benzoic acid.
 Phenylalanine.
 Phenylallophanic acid.
 Phenylarsenic acid.
 Phenylarsenious acid.
 γ -Phenyl- α -benzoylacetooacetic acid.
 Phenylbromomalonic acid.
 Phenylcarboxyaconic acid.
 Phenyl- α -chloroacetic acid.
 Phenylcinnamic acid.
 4-Phenylidihydro-2-picoline-5-carboxylic acid.
 1-Phenyl-3:5-dimethylpyrazole-4-acetic acid.
 Phenyldimethylpyrazolepropionic acids.
 1-Phenyl-2:5-dimethylpyrrole-3-carboxylic acid.
 m -Phenylenediamine-5-carboxylic acid.
 Phenylethyldianthranilic acid.
 β -Phenylethylcarbamic acid.
 γ -Phenyl- γ -ethylidene pyrotartaric acid.
 γ -Phenyl- γ -ethylitaconic acids.

Acids. See :—

Phenylethyldithiocarbamic acid.
 β -Phenylglutaranic acid.
 Phenylglutaric acids.
 Phenylglycine.
 Phenylglycine-*o*-carboxylic acid.
 Phenylglycine-*o*-dicarboxylic acid.
 Phenylglycinehydroxamic acid.
 Phenylglycolic acid.
 Phenylhydrazine-*p*-sulphonic acid.
 3-Phenyl-1-indone-2-acetic acid.
 d -Phenylitamic acid.
 4-Phenyllutidinedicarboxylic acid.
 Phenylmethanebis-2:4- and -2:5-dimethylpyrrole-3-carboxylic acids.
 α -Phenyl- β -3-methoxy-6-amino- and -6-nitro-cinnamic acids.
 3-Phenyl-5-methylfuran-2:4-dicarboxylic acid.
 Phenylmethylglycine.
 5-Phenyl-3-methylcyclohexan-3-ol-1-one-4:6-dicarboxylic acid.
 4-Phenyl-6-methyl-1:2-pyrone-5-carboxylic acid.
 3-Phenyl-5-methylpyrrole-4-carboxylic acid.
 s -Phenylmethylsuccinic acid.
 Phenylmethylidithiocarbamic acid.
 1-Phenyl-5-methyl-1:2:3-triazole-4-carboxylic acid.
 2-Phenylnaphthalene-1:7-dicarboxylic acid.
 Phenyl- β -naphthylamine-6-sulphonic acid.
 Phenylnitrocinnamic acids.
 Phenylisonitrosoglycine.
 Phenylxamic acid.
 Phenyoxyarsinodiarylcarboxylic acids.
 Phenylparaconic acid.
 Phenylphthalamic acid.
 α -Phenylpropane- $\alpha\alpha\alpha$ -tricarboxylic acid.
 Phenylpropioleic acid.
 Phenylpropionic acid.
 Phenylpyrazolecarboxylic acid.
 4-Phenylpyrazole-3:5-dicarboxylic acid.
 3-Phenylpyridine-2:6-dicarboxylic acid.
 6-Phenyl-2-pyridylacrylic acid.
 2-Phenylpyrimidine-6-carboxylic acid.
 Phenylpyrrole-2-mono- and -2:5-dicarboxylic acids.
 3-Phenylpyrrole-4-carboxylo-5-acetic acid.
 Phenylsemicarbazidedicarboxylic acid.
 Phenylidithiocarbazinic acid.
 Phenylthiocyanooacetic acid.
 Phenylthiocyanomalonic acid.
 Phenyltolylethersulphonic acids.
 1-Phenyl-1:2:3-triazolecarboxylic acids.

Acids. See :—

Phenyltrimethylenedicarboxylic acid.
 Phloroglucinolcarboxylic acid.
 Phosphomannitie acid.
 Photosantonic acids.
 Phthalamic acid.
 Phthalhydroxylamic acid.
 Phthalic acids.
 Phthaliminoamylmalonic acid.
 Piccapimaric acid.
 Picipimaric acid.
 Picipimarolic acids.
γ-Picoline-3:5-di- and -tetra-carboxylic acids.
 Picolinic acid.
 Picric acid.
 Picrolichenic acid.
 Pilocarpic acid.
 iso Pilocarpic acid.
 Pilocarpoeic acid.
 Pilomalic acid.
 Piluvic acid.
 Pimelic acid.
 Pinenolglycuronic acid.
 Piperidine-1-acetic acid.
 Piperidincarbamic acid.
 Pivalic acid.
 Propaldehyde- $\beta\beta$ -disulphonic acid.
 Propanedicarboxylic acid.
 Propanetetracarboxylic acid.
 Propanetricarboxylic acids.
 iso Propenyltrimethylenedicarboxylic acid.
 Propionic acid.
 Propionylacetooacetic acid.
 iso Propyl iso amylacetic acid.
 iso Propylisobutylsuccinic acid.
 4- iso Propyldihydroresorcylic acid.
 Propylenedicarboxylic acid.
 Propylenepentacarboxylic acid.
 Propylenetetracarboxylic acid.
 Propylenetricarboxylic acids.
 β - iso Propylglutaric acid.
 β - iso Propylheptioic acid.
 Propylidenebisacetoacetic acid.
 iso Propylsuccinic acid.
 Propylmalonomic acid.
 4- iso Propylphenyldihydro-2-picolone-5-carboxylic acid.
 iso Propylsuccinanilic acid.
 iso Propylsuccinic acid.
 iso Propyltrimethylenedicarboxylic acid.
 Protalbic acid.
 Protelemic acid.
 Protocatechic acids.
 Protolichesteric acid.
 Pulegenic acid.
 Pulegolacetic acid.
 Purpurogallincarboxylic acid.
 Pyrazolecarboxylic acids.
 Pyrazolone-3-acetic acid.

Acids. See :—

Pyridazyl-3-*p*-benzoic acid.
 Pyridinecarboxylic acids.
 Pyridine-2:3-dicarboxylic acid.
 Pyridine-3:4:5-tri- and -penta-carboxylic acids.
 Pyridolacetic acid.
 2-Pyridoylaminocrotonic acid.
 β -2-Pyridoylpropionic acid.
 Pyridylacrylic acid.
 2-Pyridylbromopropionic acids.
 Pyridylchlorohydroxyquinolsulphonic acid.
 3-Pyridylglycine-4-carboxylic acid.
 2-Pyridyl- β -propionic acid.
 Pyridyltruxillie acids.
 Pyrimidine-4:6-dicarboxylic acid.
 Pyrindinedione carboxylic acid.
 Pyrogallolsulphonic acid, triethyl ether.
 Pyromeconic acid.
 Pyromucic acid.
 iso Pyromucic acid.
 Pyroracemic acid.
 n -Pyrotartaric acid.
 Pyrrolecarboxylic acids.
 β -Pyrrolidinecarboxylic acid.
 Pyruvic acid.
 Pyruvylphenylhydrazonehydroxamic acid.
 Pyruvylpyruvic acid.
 Quinolinic acid.
 Rhamnonic acid.
 Rufigallic acid.
 Sabinenolglycuronic acid.
 Sabinolglycuronic acid.
 iso Saccharic acid.
 Salicylglycollic acid.
 Salicylhydroxamic acid.
 Salicylic acid.
 iso Salicylic acid.
 Sorbic acid.
 Styrylmethanebis-2:5-dimethylpyrrole-3-carboxylic acid.
 Succinic acid.
 Sulphanilic acid.
 Sulphoacetic acid.
 m -Sulphobenzoic acid.
 Sulphocampholenecarboxylic acid.
 Sulphohydroxamic acids.
 Sulphosalicylic acid.
 Sylvic acid.
 Tanacetonedicarboxylic acid.
 Tariric acid.
 Tartaric acid.
 Terephthalic acid.
 Terpenylic acid.
 Tetrahydroquinolinecarboxylic acids.
 Tetrahydroxyhexoic acid.
 Tetrahydroxysylvic acid.
 Tetrahydroxyvaleric acid.
 Tetramethyl*diamino*acetic acid.

Acids. See :—

Tetramethyl*diaminodiphenylmethyl-dithiocarbamic acid.*
 Tetramethyl*diaminomalonic acid.*
 Tetraoxysylvic acid.
 Tetric acid.
d-Thiocarbamic acid.
 Thiocyanic acid.
 α -Thiophenacrylic acid.
 Thujamenthotektonic acid.
 Thujonehydrateglycuronic acid.
 α -Toluenesulphinic acid.
 Toluene- p -sulphonic acid.
 Toluic acids.
 α -Toluidinoacrylic acid.
 Toluidinomethylenemalonic acids.
 p -Toluidinophosphamic acid.
 p -Toluoyltartric acid.
 α -Tolylallophanic acid.
 Tolyl-2:5-dimethylpyrrole-3:4-dicarboxylic acids.
 Tolylenebis-2:5-dimethylpyrrole-3:4-dicarboxylic acids.
 β - p -Tolylglutaric acid.
 β - p -Tolylglutaric acid.
 p -Tolyl- m -hydroxyphenazinesulphonic acid.
 p -Tolyl- α -naphthylaminesulphonic acid.
 α -Tolylxamic acid.
 Tolylaminosulphonic acids.
 α -Tolylphthalamic acid.
 Tolythioglycollic acids.
 Tolythiohydantoic acids.
 Triacetylgalactonic acid.
 Tribenzylamine- m -tricarboxylic acid.
 Tricarballylic acid.
 Triethylbenzenesulphonic acids.
 Trihydroxybutyric acid.
 $\alpha\beta\gamma$ -Trihydroxy- $\alpha\delta$ diphenylvaleric acid.
 2:3:8-Trihydroxynaphthalene-6-sulphonic acid.
 Trimethylenecarboxylic acid.
 Trimethylenetetracarboxylic acid.
 Trimethylenetricarboxylic acid.
 Trimethylitanalic acid.
 2:3:4-Trimethylnicotinic acid.
 Trimethylparaconic acid.
 Trimethylpentane- $\beta\epsilon$ -olidoic acids.
 Trimethylpentanolic acid.
 Trimethylquinolinic acid.
 Trimethylsuccinic acid.
 Triphenylmethanesulphonic acid.
 Triticonucleic acid.
 Tropic acids.
 α -Truxillic acid.
 Tyrosine.
 Undecoinic acids.
 Urano-malic and -tartaric acids.
 Uric acids.
 Usnaric acid.

Acids. See :—

Usnic acids.
 Usnidic acid.
 Valeric acids.
 $\alpha\omega$ Valerylacetic acid.
 $\alpha\omega$ Valerylacetooacetic acid.
 Variolaric acid.
 Veratric acid.
 Vinylacetic acid.
 Vinylacrylic acid.
 Xanthic acid.
 Xanthine-4:5-dicarboxylic acid.
 Xylenedicarboxylic acid.
 m -Xylinomethylenemalonic acid.
 β -Xylylic acid.
 Xylylthiolhydantoic acids.

Acids. See also Alkyloxy-acids, Amino-acids, Hydroxy acids, Ketonic acids, Lactonic acids and Pseudo-acids.

Aconitic acid (*propyleneetricarboxylic acid*), mono- and *di*-cyano-, and their sodium derivatives, ethyl esters (ERRERA and PERCIABOSCO), A., i, 116.
isoAconitic acid, ethyl ester, action of halogen-substituted esters of fatty acids on (GUTHZEIT and ENGELMANN), A., i, 742.

Acridine syntheses by means of *o*-amino-benzyl alcohol (ULLMANN and BAEZNER), A., i, 694.
 derivatives from 1-arylaminoanthraquinones (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 501.
 methiodide, action of alkalis on (PICET and PATRY), A., i, 644.

Acridine, 5-bromo- and 5-chloro- (KALLE & Co.), A., i, 311.
 5-bromo-, 5-chloro-, and 5-iodo-, and their salts (EDINGER and ARNOLD), A., i, 181.
 9-iodo- (KALLE & Co.), A., i, 495.

Acidone, *tetraniitro-* (EDINGER and ARNOLD), A., i, 181.

Acyl chlorides, behaviour of certain, towards agents which eliminate hydrogen chloride (WEDEKIND), A., i, 739.

Acylamines, production of (DUNLAP), A., i, 756.

Acylcyanoacetic acids, esters, action of, on diazonium and tetra-azonium chlorides (FAVREL), A., i, 406.

Acyl groups, intramolecular migration of (WISLICENUS and KÖRBER), A., i, 72.

Acyliminothiocarbonic esters, and **Acyl-thiocarbamic acids**, action of phenylhydrazine on (WHEELER and BEARDSLEY), A., i, 502.

Acyl-thio- and ψ -thio-carbamides, molecular rearrangement of unsymmetrical into the isomeric symmetrical (WHEELER), A., i, 444.

Additive products, law governing the formation and decomposition of (MICHAEL and MIGHILL), A., i, 129.
Address, congratulatory, to M. Marcellin Berthelot, P., 1901, 250.
 to the Owens College, Manchester, P., 1902, 64.
 presidential (REYNOLDS), T., 609; P., 1902, 77.
Adenine, physiological action of (SCHITTENHELM), A., ii, 617.
Adipic acid (*butanedicarboxylic acid*), $\alpha\delta$ -dibromo-, ethyl ester (WILLSTÄTTER and LESSING), A., i, 561.
Adipic acids, α - and β , distinction between (WALLACH and SPERANSKI), A., i, 723.
Adiponitrile (HENRY), A., i, 141.
Adrenalin (TAKAMINE), A., ii, 217; (ALDRICH), A., ii, 518.
Egirine-augite from the Ilinen Mountains (SUSCHTSCHINSKY), A., ii, 30.
Aërobic fermentation. See Fermentation.
Afamyrin, **Afalemic acid**, and **Afeleresen** (TSCHIRCH and CREMER), A., i, 813.
AFFINITY, CHEMICAL :—
 Association in benzene solution, influence of temperature on (INNES), T., 682; P. 1902, 26.
Affinity constants of nitroamines and isonitroamines (HANTZSCH and BUCHNER), A., i, 209.
 of organic acids, influence of constitution on the (WEGSCHEIDER), A., ii, 494.
Affinities, neutral (SPIEGEL), A., ii, 248.
 of acids, method of determining (DAWSON and GRANT), T., 513; P., 1902, 68.
 of the halogenated hydroxybenzoic acid in relation to their constitution (COPPADORO), A., i, 783.
Residual affinity, part played by, in the formation of substitution derivatives (ARMSTRONG and HORTON), P., 1901, 246.
Dilution law, Ostwald's (VAUBEL), A., ii, 388.
Mass law, limitations of the (BANCROFT), A., ii, 496.
Chemical reactions, instantaneous, and the theory of electrolytic dissociation (KAHLENBERG), A., ii, 301.
 influence of electric waves on (LENGFELD and RANSOM), A., ii, 4.
 limit of, and of the product PV (PONSON), A., ii, 9.
 inhibition of, by foreign substances (YOUNG), A., ii, 387.
 produced by radium (BERTHELOT), A., ii, 18.

AFFINITY, CHEMICAL :—
Catalytic actions (RUFF), A., ii, 13.
 lecture experiments illustrating various types of (NOYES and SAMMET), A., ii, 498.
 of iodine in the bromination of benzene (BRUNER), A., ii, 447.
 properties of the hydrogenases (POZZI-ESCOL), A., i, 513.
 racemisation of amygdalin (WALKER), P., 1902, 198.
Catalysis (OSTWALD), A., ii, 197.
 of hydrazine (TANATAR), A., ii, 386, 495.
 of hydrogen peroxide by colloidal mercury and silver (MCINTOSH), A., ii, 310.
 of hydroxylamine (TANATAR), A., ii, 386.
Pseudocatalysis (ENGLER and WÖHLER), A., ii, 127.
Chemical equilibrium, between different degrees of oxidation (MAZZUCHELLI), A., ii, 119.
 simultaneous, and the relations between thermodynamics and velocity of reaction of homogenous systems (WEGSCHEIDER), A., ii, 9.
 in the system $\text{Bi}_2\text{O}_3-\text{N}_2\text{O}_5-\text{H}_2\text{O}$ (RUTTEX), A., ii, 386.
 of carbon-iron systems (CHARPY and GRENET), A., ii, 209.
 between carbonates and bicarbonates in aqueous solution (CAMERON and BRIGGS), A., ii, 64.
 conditions of, of deliquescent and hygroscopic salts of copper, cobalt and nickel (HARTLEY), A., ii, 197.
 in the reduction of nitric acid by means of nitric oxide (SAPOSCHNIKOFF), A., ii, 16.
 between acid salts and sparingly soluble salts (MAGNANINI and GRIMALDI), A., ii, 249.
Equilibrium constants of chemical reactions, method of calculating (FINDLAY), A., ii, 386.
Hydrolysis of esters of carboxylic and sulphonic acids (WEGSCHEIDER), A., ii, 493.
 of nitrohydroxylaminic and sulphohydroxamic acids (ANGELI, ANGELO, and SCURTI), A., i, 765.
Distribution coefficient, application of, to determine the relative affinities of acids (DAWSON and GRANT), T., 513; P., 1902, 68.
Ratio of distribution of acetic acid between chloroform and water (DAWSON), T., 522; P., 1902, 69.

AFFINITY, CHEMICAL:

Ratio of distribution of a base between two acids, method of determining (DAWSON and GRANT), T., 512; P., 1902, 68.

Partition coefficients, state of dissolved compounds deduced from (HANTZSCH and VAGT), A., ii, 8. of picric acid between water and toluene, water and ether, and water and amyl alcohol (SISLEY), A., i, 815.

Velocity of coagulation of colloidal silicic acid (FLEMMING), A., ii, 646.

Velocity of combination of heterocyclic compounds with alkyl bromides (MENSCHUTKIN), A., ii, 493.

Velocity of decomposition of ammonium nitrite (ARNDT), A., ii, 64.

of bromosuccinic acid in aqueous solution (MÜLLER), A., ii, 647.

of diazo-compounds (CAIN and NICOLL), T., 1412; P., 1902, 186, 244.

Velocity of electrolytic decomposition of oxalic acid in sulphuric acid (ÅKERBERG), A., ii, 488.

Velocity of enzyme action (BROWN), T., 374; P., 1902, 41.

Velocity of esterification of α -, β -, γ -, and δ -halogen derivatives of fatty acids (LICHTY), A., i, 201.

of the two dibenzoylmesitylenic acids (MILLS and EASTERFIELD), T., 1318; P., 1902, 168.

Velocity of formation of simple ethers (ROSENFIELD-FREIBERG), A., ii, 492.

Velocity of hydration in some inorganic reactions, cause of the influence of positive and negative catalysts on the (ROHLAND), A., ii, 601.

of metaphosphoric acid (J. C. and F. C. BLAKE), A., ii, 197.

of pyrophosphoric acid (MONTEMARTINI and EGIDI), A., ii, 451.

Velocity of hydrolysis of acetylated monoses and bioses (KREMANN), A., i, 712.

of starch by diastase (BROWN and GLENDINNING), T., 388; P., 1902, 43.

Velocity of intramolecular rearrangement in halogen-acetanilides (BLANKSMA), A., ii, 646.

Velocity of inversion (KULLGREN), A., ii, 647.

of sucrose (BROWN), T., 376; P., 1902, 41; (V. LIPPMANN), A., i, 84; (HENRI), A., ii, 127.

AFFINITY, CHEMICAL:

Velocity of inversion of sucrose by sucrase, influence of the concentration, of pressure, of neutral salts, and of sodium chloride on (HENRI), A., i, 712.

Velocity of oxidation of chromic hydroxide (ANTONY and PAOLI), A., ii, 661.

Velocity of reactions, theory of (WEGSCHEIDER), A., ii, 9, 492; (EULER), A., ii, 384.

and thermodynamics, relation between, and simultaneous equilibrium of homogeneous systems (WEGSCHEIDER), A., ii, 9.

in organic solvents (SCHWEINBERGER), A., ii, 126.

of bromine on ethyl alcohol (BUGARSZKY), A., ii, 9.

Velocity of solution (DRUCKER), A., ii, 248.

of metals (ERICSON-AURÉN and PALMAER), A., ii, 64.

of solid substances (BRUNER and TOLLOCZKO), A., ii, 62.

Velocity of substitution of a halogen by an alkyloxy group in some aromatic halogen nitro-compounds (LULOFFS), A., i, 87.

Agaric acid, di-*p*-phenetidide of (RIEDEL), A., i, 705.

Agaricic acid, its salts, esters, acetyl derivative, and compound with *p*-phenetidine (SEIDLER and WINZHEIMER), A., i, 487.

AGRICULTURAL CHEMISTRY—**ANIMALS, DAIRY PRODUCTS, FEEDING EXPERIMENTS:**

Agricultural chemistry, relations of absorption to (SCHALLER), A., ii, 226.

Bullocks, value of condiments in the feeding of (VOELCKER), A., ii, 348.

Cows, studies on the feeding of (JORDAN, JENTER, and FULLER), A., ii, 579. studies on the feeding of, in Connecticut (PHELPS), A., ii, 579.

See also Butter, Milk, and Feeding Experiments.

Dogs, feeding experiments on, with nitrogenous materials (KORNUTH), A., ii, 674.

See also Main Index.

Herbivora, metabolism of calcium, magnesium, and phosphorus in (TANGL), A., ii, 272.

Horses, metabolism in (PFEIFFER; ZUNTZ and HAGEMANN), A., ii, 272.

molasses foods for (GAROLA), A., ii, 285.

AGRICULTURAL CHEMISTRY: ANIMALS :—

Pigs, feeding experiments on, with bran, meat meal, rye, and sugar (KLEIN), A., ii, 579.

Ruminants, utilisation of gluten protein by (KELLNER), A., ii, 168.

DAIRY PRODUCTS :—

Butter, influence of the growth of mould on the chemical composition of (CRAMPTON), A., ii, 709.

amount of volatile fatty acids in the fat of (VIETH), A., ii, 348.

decomposition of the fat of, by micro-organisms (LAXA), A., ii, 97.

Bulgarian, from buffaloes and sheep (PETKOW), A., ii, 114.

rancidity of (JENSEN), A., ii, 468.

See also Feeding Experiments.

methods of analysis. See Main Index.

Cheese, Emmenthaler, constituents of (WINTERSTEIN and THÖNY), A., ii, 687.

Colostrum, composition of (SUTHERST), A., ii, 677.

Milk, composition of (RICHMOND), A., ii, 182, 677.

skimmed, composition of (BORDAS and DE RACZKOWSKI), A., ii, 678.

variations in the composition of, during milking (ACKERMANN), A., ii, 168, 466.

specific heat of (FLEISCHMANN), A., ii, 518.

relation between specific gravity, fat, and solids not fat in (LEONARD), A., ii, 183.

variation of the amount of fat in (MALPEAUX and DOREZ), A., ii, 40.

effect of feeding on the amount of fat in (MALPEAUX and DOREZ), A., ii, 168; (MALPEAUX and DELATTRE), A., ii, 526; (SJOLLEMA), A., ii, 527.

variation in the amount of phosphoric acid in, according to the period of lactation (BORDAS and DE RACZKOWSKI), A., ii, 626.

calculation of the simultaneous addition of water to, and withdrawal of cream from (GÉNIN), A., ii, 183.

action of rennin on (FULD), A., ii, 415.

digestibility of, compared with human milk and its substitutes (TUNNICLIFFE), A., ii, 673.

effect of freezing on (BORDAS and DE RACZKOWSKI), A., ii, 158.

effect of work on (MOERMAN), A., ii, 626.

AGRICULTURAL CHEMISTRY: DAIRY PRODUCTS :—

Milk, heated, the film of (RETTGER), A., ii, 519.

alcohol in (TEICHTERT), A., ii, 348.

the enzyme in (LOEW), A., i, 732.

presence of nitrates in, as an indication of adulteration (GERBER and WIESKE), A., ii, 540.

proteids of (SIMON), A., ii, 95.

liberation of a volatile sulphide from, on heating (RETTGER), A., ii, 218.

study of lactic fermentation of, by observations of electrical resistance (LESAGE and DONGIER), A., ii, 343.

abnormal (WAUTERS), A., ii, 541.

decrease in the acidity of (KIRSTEN), A., ii, 365, 540.

of goats and sheep, feeding experiments with fat on the amount and composition of the (BEGER, DOLL, FINGERLING, HANCKE, SIEGLIN, ZIELSTORFF, and MORGEN), A., ii, 101.

sheep's, composition of (TRILLAT and FORESTIER), A., ii, 574.

See also Cows and Feeding Experiments.

methods of analysis. See Main Index.

FEEDING EXPERIMENTS :—

Brewers' grains, dried, production of (DIETRICH), A., ii, 166.

Brandy residues, dried (DIETRICH), A., ii, 285.

Condiments, feeding value of (VOELCKER), A., ii, 348.

Distillery grains, dried (DIETRICH), A., ii, 166.

Fat, feeding experiments with, on the amount and composition of the milk of goats and sheep (BEGER, DOLL, FINGERLING, HANCKE, SIEGLIN, ZIELSTORFF, and MORGEN), A., ii, 101.

Maize, digestion of, by fowls (PARASCHTSCHUK), A., ii, 525.

Molasses as food for horses (GAROLA), A., ii, 285.

Molasses foods, keeping properties and storage of (SCHULZE), A., ii, 579.

Nitrogenous materials as food for dogs (KÖNAUTH), A., ii, 674.

Phosphorus, feeding value of (KÖNAUTH), A., ii, 674.

Rye, mill refuse of (OTTO), A., ii, 687.

Sweet potato meal as cattle food (BONNIN), A., ii, 42.

Sunflower cake (WINDISCH), A., ii, 687.

AGRICULTURAL CHEMISTRY : FEEDING EXPERIMENTS :—

Wheat, mill refuse of (OTTO), A., ii, 687.

PLANTS.

PLANT COMPOSITION AND METABOLISM :—

Plants, influence of carbon dioxide in the air, on the form and internal structure of (FARMER and CHANDLER), A., ii, 683.

influence of the sun on (BERTHELOT), A., ii, 421.

relative power of, to utilise the phosphoric acid of crude phosphates (KOSOWITSCH), A., ii, 689.

nutrition of, with phosphorus (SCHLÖSING), A., ii, 220.

nutrition of, at the expense of the cotyledons (ANDRÉ), A., ii, 99.

mode of utilisation of tertiary carbon by (MAZÉ), A., ii, 578.

mode of utilisation of ternary nourishment by (MAZÉ), A., ii, 577.

do leucine and tyrosine serve as nutrients for? (SCHULZE), A., ii, 165, 280.

mechanism of esterification in (CHARABOT and HÉBERT), A., ii, 99.

chemical modifications in, under the influence of sodium chloride (CHARABOT and HÉBERT), A., ii, 346.

mechanism of the chemical changes in, subjected to the influence of sodium nitrate (CHARABOT and HÉBERT), A., ii, 523.

rise of colouring matters in (GOPSLOEDER), A., ii, 424.

amino-acids from (SCHULZE and WINTERSTEIN), A., i, 595.

simultaneous occurrence of araban and xylan in (BROWNE and TOLLENS), A., ii, 420.

occurrence of berberine in (GORDIN), A., ii, 368.

cyanogenesis in (DUNSTAN and HENRY), A., ii, 578.

presence of rennet in (JAVILLIER), A., ii, 625.

conditions of proteid formation in (ZALEWSKI), A., ii, 348.

importance of nitrogen in the synthesis of proteids in (CZAPEK), A., ii, 280.

ammonium as direct source of nitrogen for (KOSOWITSCH), A., ii, 684.

assimilation of nitrogen by (BREFFELD), A., ii, 344.

AGRICULTURAL CHEMISTRY : PLANTS :—

Plants, green, assimilation of, as compared with that of Fungi (BOKORNY), A., ii, 345.

etiolated, effect of temperature on mineral absorption by (ANDRÉ), A., ii, 419.

methods of analysis. See Main Index.

PLANTS :—

Cell-life, function of peroxides in (CHODAT and BACH), A., ii, 344; (BACH and CHODAT; LOEW), A., ii, 522.

Cells, wood, permanent action which tends to produce a negative tension in (DEVAUX), A., ii, 624.

Chlorophyll (MARCHLEWSKI), A., i, 387.

changes undergone by, in passing through the bodies of animals (SCHUNCK), A., i, 301.

Chlorophyllous assimilation (HARROX), A., ii, 165; (HERZOG), A., ii, 578.

in the autumn (FRIEDEL), A., ii, 99. in leaves when the upper or under sides are exposed to light (GRIFFON), A., ii, 624.

Leaves, influence of varying amounts of carbon dioxide in the air on the photosynthetic process of (BROWN and ESCOMBE), A., ii, 682.

isolated, decomposition of carbon dioxide by (DEHÉRAIN and DEMOUSSY), A., ii, 624.

Nodules, effect of manures on the development of, on leguminous plants (LAURENT), A., ii, 167.

influence of nutritive salts on the production of, on peas (MARCHAL), A., ii, 167.

Root parasites, formation of, from common Bacteria (LEPOUTRE), A., ii, 467.

Roots, chemical reaction on the surface of (RACIBORSKI), A., ii, 419. number and depth of, with different manures (v. SEELHORST), A., ii, 524.

action of metallic copper on (LEHMANN), A., ii, 420.

Seeds, germinating, enzymes in (BOKORNY), A., ii, 418.

oleaginous, protein grains in (GRAM), A., ii, 684.

resting, action of chloroform vapour on (SCHMID), A., ii, 683.

Shoots, formation of asparagine in the metabolism of (SUZUKI), A., ii, 684.

Respiration of plants (FLIOROW), A., ii, 344; (PURJEWICZ), A., ii, 345.

AGRICULTURAL CHEMISTRY : PLANTS :—

Respiration of hydrogen and hydrocarbons (POLLACCI), A., ii, 99.
of resting plants (KOLKWITZ), A., ii, 623.
of seeds, influence of mineral salts on the, during germination (KRZEMIENIEWSKI), A., ii, 418.

Plant food, study of the available mineral, in soils (MOORE), A., ii, 422.
See also Main Index.

Plant growth, certain relations of, to ionisation of the soil (PLOWMAN), A., ii, 683.
relations of calcium and magnesium to (MAY), A., ii, 346, 623; (LOEW), A., ii, 350, 685; (LOEW and MAY), A., ii, 622; (Asò; FURATA), A., ii, 689.
influence of calcium salts and sodium chloride on (PETHYBRIDGE), A., ii, 623.
influence of varying amounts of carbon dioxide in the air on (BROWN and ESCOMBE), A., ii, 682.
effect of kainite on (ENNENBACH), A., ii, 622.
influence of potassium on (PETHYBRIDGE; WILFARTH, WIMMER, RÖMER, MAYER, KATZ, and GEISTHOFF), A., ii, 623.
damage done to, by potassium perchlorate (JUNGNER), A., ii, 41.

Germination, variation in the organic matter during (ANDRÉ), A., ii, 165.
transformations of proteids during (ANDRÉ), A., ii, 522.

PLANTS :—

Apples, transpiration of (OTTO), A., ii, 523.
ripening of (OTTO), A., ii, 281.
methods of analysis. See Main Index.

Bananas (LEUSCHER), A., ii, 421.

Barley, manurial experiments with varieties of (HANAMANN), A., ii, 103.
manurial experiments on (ULRICH), A., ii, 525.
manuring experiments on, in heavy marsh soil (LILIENTHAL), A., ii, 42.
effect of various mechanical conditions of the same soil on (VAÑHA), A., ii, 41.
influence of single manures on (VAÑHA), A., ii, 102.
effect of lithium chloride on (VOELCKER), A., ii, 349.

AGRICULTURAL CHEMISTRY : PLANTS :—

Barley, manurial experiments on, with potassium and phosphoric acid (REMY and NEUMANN), A., ii, 524.

Barley seed, soaking of, in solutions of sodium haloids (VOELCKER), A., ii, 349.

Bean seedlings, necessity of lime for (v. PÖRTHEIM), A., ii, 626.

Beans, manuring experiments on, in heavy marsh soil (LILIENTHAL), A., ii, 42.

Beetroot (sugar), alterations in the composition of, during ripening (ANDRLÍK, STANĚK, and URBAN), A., ii, 526.
relation between the amounts of phosphoric acid and ammonia in (PELLET), A., ii, 526.
effect of deficiencies of potassium, phosphoric acid, and nitrogen on (WILFARTH, RÖMER, and WIMMER), A., ii, 221.
manurial experiments with potassium on, in 1900 (AUMANN), A., ii, 581.

Cassava roots, cultivation and composition of (LEUSCHER), A., ii, 284.

Cereals, changes in nitrogenous substances during the ripening of (NEDOKUTSCHAEFF), A., ii, 281.
lime as a manure for (LOEW), A., ii, 689.
is the form of, influenced by nitrogenous manures? (CLAUSEN), A., ii, 283.
methods of analysis. See Main Index.

Chestnuts, soils suitable for (PICCIOLI), A., ii, 285.

Chicory and the production of leaves (CARPIAUX), A., ii, 524.

Clover, cultivation of, on soils without calcium carbonate (DEHÉRAIN and DEMOUSSY), A., ii, 167.

Dates, germinating, decomposition of carbohydrates in (GRÜSS), A., ii, 522.

Fungi, nitrogenous constituents of certain (WINTERSTEIN and HOFFMANN), A., ii, 622.

Hops, cultivation of (REMY and ENGLISCH), A., ii, 168.
manurial experiments on (REMY), A., ii, 349.

Horse chestnut trees, migration in (ANDRÉ), A., ii, 624.

Kohlrabi, manurial experiments with, on sand (ORTO), A., ii, 284.

Leguminosæ, effect of manures on the development of nodules on the roots of (LAURENT), A., ii, 167.
effect of calcium carbonate on (SCHULZE), A., ii, 580.

AGRICULTURAL CHEMISTRY : PLANTS :—

Liliaceæ, composition of the reserve carbohydrates of the proteid of seeds of (DUBAT), A., ii, 99.

Lucerne, cultivation of, on soils with calcium carbonate (DEHÉRAIN and DEMOUSSY), A., ii, 283.

Mangel-wurzels, cultivation of, at Grignon in 1900 and 1901 (DEHÉRAIN and DUPONT), A., ii, 526.

Maranta, cultivation of (LEUSCHER), A., ii, 283.

Oats, effect of different amounts of moisture in the soil and different manures on (LANGER and TOLLENS), A., ii, 41.

See also Main Index.

Orchid tubers, composition of, at different periods (RAMMELBERG), A., ii, 420.

digestion of the mannan of (HÉRISSEY), A., ii, 419.

Peas, influence of nutritive salts on the production of nodules on the roots of (MARCHAL), A., ii, 167.

Phanerogamic parasites, amount of lime in (Asò), A., ii, 684.

Piper Fumechoni (*kissi powder*), composition of (BARILLÉ), A., ii, 578.

Potatoes, experiments on (FISCHER), A., ii, 350.

manurial experiments with "forty per cent. potassium salts" on, on peat soil (TACKE), A., ii, 687.

influence of manuring on the composition of (SUTHERST), A., ii, 103.

rich in starch, amounts of phosphoric acid and potassium in the ashes and leaves of (SEISSL and GROSS), A., ii, 687.

methods of analysis. See Main Index.

Potato tubers, relation of the chemical constitution and anatomical character to the value of (WATERSTRADT and WILLNER), A., ii, 525.

Prunus, hydrogen cyanide in the buds of (VERSCHAFFELT), A., ii, 523.

Ruscus aculeatus, composition of the seeds of (DUBAT), A., ii, 99.

Rye (BARNSTEIN), A., ii, 525.

manuring experiments on (KÜHN), A., ii, 39.

Sorghum vulgare, hydrogen cyanide from (DUNSTAN and HENRY), A., ii, 578.

Strawberries, composition of (PARIS), A., ii, 348.

presence of salicylic acid in (PORTES and DESMOULIÈRE), A., ii, 40.

lymphagogue action of (MENDEL and HOOKER), A., ii, 520.

AGRICULTURAL CHEMISTRY : PLANTS :—

Sugar cane, localisation of phosphates in the (SPRANKLING), T., 1543 ; P., 1902, 196.

Sweet potato (BONNIN), A., ii, 42.

Taxus baccata (yew), composition of the wood and ash of (THOMS), A., ii, 220.

Tobacco. See Main Index.

Tobacco leaves, amount of nicotine, resin, wax, and non-volatile organic acids in, at various periods of their growth (KISSLING), A., ii, 625.

seeds, supposed presence of solanine in (STARKE), A., ii, 166.

Trees, occurrence of methylpentosan in the needles and leaves of (SOLLIED), A., ii, 219.

Vegetables, presence of lecithin in (SCHLAGDENHAUFFEN and REEB), A., ii, 625.

Vines, influence of the sun on (BERTHELOT), A., ii, 421.

nitrogenous manuring of (WAGNER), A., ii, 284.

phosphatic manuring of (PATUREL), A., ii, 284.

Vineyards, high yielding, conditions of vegetation in (MÜNTZ), A., ii, 421.

Weeds, experiments on the prevention of (VOELCKER), A., ii, 350.

Wheat (BARNSTEIN), A., ii, 525.

hard and soft (VOELCKER), A., ii, 349.

hard, composition of, and of its gluten (FLEURENT), A., ii, 102.

effect of lithium chloride on (VOELCKER), A., ii, 349.

composition of the products of grinding, by millstones and by rollers (LINDET), A., ii, 102.

Wheat embryos, triticonucleic acid from (OSBORNE and HARRIS), A., i, 847.

Wheat grain, origin of starch in (DEHÉRAIN and DUPONT), A., ii, 100.

Wheat seed, soaking of, in solutions of sodium haloids (VOELCKER), A., ii, 349.

SOILS.

Soils, sampling of (LEATHER), T., 883 ; P., 1902, 125.

bacteriology of (REMY), A., ii, 682.

inoculation of, experiments in the (STOKLASA), A., ii, 285.

nitrification in different (WITHERS and FRAPS), A., ii, 576.

decomposition of nitrogen compounds in, by lower organisms (KRÜGER and SCHNEIDEWIND), A., ii, 39.

AGRICULTURAL CHEMISTRY : SOILS :—

Soils, ionisation of, in relation to plant growth (PLOWMAN), A., ii, 683.
study of the available mineral plant food in (MOORE), A., ii, 422.
effect of lime on the insoluble phosphates in (SUTHERST.), A., ii, 471.
effect of various mechanical conditions of the same, on barley (VAÑHA), A., ii, 41.
suitable for chestnuts (PICCIOLI), A., ii, 285.
heavy, green manuring on (HANUSCH), A., ii, 169.
Jamaica, mineral in (LEUSCHER), A., ii, 286.
loamy, conditions of temperature and moisture of, with different crops and different manures (v. SEELHORST), A., ii, 42.
peat, manurial experiments on (v. FEILITZEN), A., ii, 527.
action of potassium manures on (BAUMANN), A., ii, 689.
time for manuring, especially with potassium salts (TACKE), A., ii, 580.
chemical changes in, after several years' cultivation and manuring (v. FEILITZEN), A., ii, 527.
causes of sterility in (DUMONT), A., ii, 169.
Silesian, manurial requirements of (SCHULZE), A., ii, 580.
vegetable (SCHLESING), A., ii, 422.
methods of analysis. See Main Index.

Humus, nitrogen of (DOJARENKO), A., ii, 285.

NITRIFICATION, NITROGEN, AND NITROGENOUS COMPOUNDS :—

Nitrification, studies in (LIPMAN), A., ii, 423.
in different soils (WITHERS and FRAPS), A., ii, 576.

Nitrates and nitrites, decomposition of, by Bacteria (MAASSEN), A., ii, 39.

Nitrogen, amount of, as ammonia and as nitric acid, in the rain-water collected at Rothamsted (MILLER), P., 1902, 88.
amount of, as nitrates, in the drainage through uncropped and unmanured land (MILLER), P., 1902, 89.
value of the, in Pyrenean phosphates (JOFFRE), A., ii, 103.
assimilation of, by plants (BREFELD), A., ii, 344.
free, assimilation of, by soil bacteria without symbiosis with Leguminose (KÜHN), A., ii, 38.

AGRICULTURAL CHEMISTRY : SOILS :—

Nitrogen, ammonium as direct source of, for plants (KOSOWITSCH), A., ii, 684.
manurial value of, in absence of other nutritive substances (WILFARTH), A., ii, 526.
effect of, on nitrates (NOBBE and RICHTER), A., ii, 521.
as nitrates and as ammonia, manurial action of (GERLACH), A., ii, 528.
effect of alinit, cow dung, peat, and straw on the action of (GERLACH), A., ii, 580.

Nitrogen compounds, decomposition of, in soil by lower organisms (KRÜGER and SCHNEIDEWIN), A., ii, 39.

Bacteria, nitrogen-assimilating, in soils (NEUMANN), A., ii, 163.
soil, process for inoculation with (FARBENFABRIKEN VORM. F. BAYER & CO.), A., ii, 164.
assimilation of free nitrogen by, without symbiosis with Leguminose (KÜHN), A., ii, 38.

Denitrification (WEISSENBERG), A., ii, 470.

WATER.

Waters, Indian saline (LEATHER), T., 887 ; P., 1902, 127.

Drainage water (CREYDT, v. SEELHORST, and WILMS), A., ii, 45.
through uncropped and unmanured land, amounts of nitrogen, as nitrates, and chlorine in the (MILLER), P., 1902, 89.

Rain-water, amounts of nitrogen as ammonia and as nitric acid, and of chlorine in the, collected at Rothamsted (MILLER), P., 1902, 88.

MANURES AND MANURING EXPERIMENTS :—

Manures, single, influence of, on barley (VAÑHA), A., ii, 102.
influence of, on the composition of potatoes (SUTHERST.), A., ii, 103.
methods of analysis. See Main Index.

Alinit (SCHULZE), A., ii, 344.

Ammoniacal manures, use of, on calcareous soils (GIUSTINIANI), A., ii, 42.

Ammonium salts and sodium nitrate, relative manurial value of (WAGNER), A., ii, 43.
sulphate, after effect of (KLOEPFER), A., ii, 580.

Basic slag, effect of soil moisture on the action of, as compared with bone-meal and superphosphate (v. SEELHORST), A., ii, 580.

- AGRICULTURAL CHEMISTRY: MANURES:-**
- Basic slag**, mixtures of martin-slag and degelatinised bone-meal as diluents for (DAFERT and PILZ), A., ii, 103.
- Bone-meal**, effect of soil moisture on the action of, as compared with basic slag and superphosphate (v. SEELHORST), A., ii, 580.
- manurial action of the phosphoric acid of (KELLNER and BÖTTCHER), A., ii, 528.
- Calcium and magnesium**, relation of to plant growth (MAY), A., ii, 346, 623; (LOEW), A., ii, 350, 689; (LOEW and MAY), A., ii, 622; (ASÖ; FURATA), A., ii, 689.
- Calcium compounds**, manurial action of some (MEYER), A., ii, 44.
- salts, influence of, on plant growth (PETHYBRIDGE), A., ii, 623.
- carbide residues as manure (GERLACH), A., ii, 582.
- carbonate, effect of, in the soil on the development of leguminous plants (SCHULZE), A., ii, 580.
- oxide (*lime*), effect of, on the insoluble phosphates in the soil (SUTHERST), A., ii, 471.
- as a manure for cereals (LOEW), A., ii, 689.
- necessity of, for seedlings (v. PÖRTHEIM), A., ii, 626.
- and magnesia in burnt lime and marls, experiments with (ULBRICHT), A., ii, 581.
- phosphate, precipitated, manurial experiments with (SÖDERBAUM), A., ii, 350.
- Excretion of cows**, manurial value of (SWEESTER), A., ii, 170.
- Farmyard manure**, aerobic fermentation of (DUPONT), A., ii, 577.
- value of the nitrogen in and its estimation (PFEIFFER, LEMMERMANN, RIECKE, and BLOCH), A., ii, 423.
- Green manuring** (PITSCH), A., ii, 286.
- Guano**, Australian bat, minerals in (MACIVOR), A., ii, 460.
- Kainite**, manurial value of (GERLACH), A., ii, 170.
- effect of, as manure on the germination and growth of plants (ENNENBACH), A., ii, 622.
- value of "forty per cent. potassium salts" as compared with (MAERCKER and SCHNEIDEWIND), A., ii, 581.
- Humous substances**, effect of, on the inoculation of leguminous plants (NOBBE and RICHTER), A., ii, 521.

- AGRICULTURAL CHEMISTRY: MANURES:-**
- Magnesium compounds**, manurial action of various (MEYER), A., ii, 45.
- See also under Calcium.
- Peat ash** as manure (BOES), A., ii, 471.
- Phosphates**, insoluble, in the soil, effect of lime on the (SUTHERST), A., ii, 471.
- manurial value of various (KELLNER and BÖTTCHER), A., ii, 351.
- relative value of different (PRIANISCHNIKOFF), A., ii, 169.
- Pyrenean, value of the nitrogen in (JOFFRE), A., ii, 103.
- soil, soluble in water (SCHLÆSING), A., ii, 626.
- Phosphatic manures**, solubility of, in some organic acids (SUTHERST), A., ii, 44.
- Phosphoric acid**, solution of, in soil water (PATUREL), A., ii, 688.
- of crude phosphates, relative power of agricultural plants to utilize (KOSOWITSCH), A., ii, 689.
- Potassium**, influence of, on plant growth (PETHYBRIDGE; WILFARTH, WIMMER, RÖMER, MAYER, KATZ, and GEISTHOFF), A., ii, 623.
- manurial experiments with, on sugar beet in 1900 (AUMANN), A., ii, 581.
- Potassium manures**, plot and pot experiments on the value of (SCHULZE), A., ii, 581.
- action of, on peat land (BAUMANN), A., ii, 689.
- Potassium salts**, high per cent., manurial value of (GERLACH), A., ii, 170.
- forty per cent., manurial experiments with, on potatoes on peat soil (TACKE), A., ii, 687.
- value of forty per cent., as compared with kainite (MAERCKER and SCHNEIDEWIND), A., ii, 581.
- Sodium chloride**, influence of, on plant growth (PETHYBRIDGE), A., ii, 623.
- nitrate and ammonium salts, relative manurial value of (WAGNER), A., ii, 43.
- manurial experiments with, in the red wine district of Ahrthal (KULISCH), A., ii, 43.
- Superphosphate**, effect of soil moisture on the action of, as compared with basic slag and bone-meal (v. SEELHORST), A., ii, 580.
- free acid in (OSTERSETZER), A., ii, 473.
- Manuring experiments** (SEBELIEN), A., ii, 44.

- Air.** See Atmospheric air.
- Alanine,** derivative of (FISCHER), A., i, 350.
- Alanylalaninecarboxylic acid,** ethyl ester (FISCHER), A., i, 351.
- Albaspidin,** constitution of (BOEHM), A., i, 38.
- Albumin,** the chemistry of (KOSSEL; SALKOWSKI), A., i, 128.
and salts, molecular concentration of solutions of (FREDERICQ), A., ii, 646.
decomposition of (DENNSTEDT), A., i, 128.
fission of, by papayotin (EMMERLING), i, 407, 408.
formation of carbamide by the oxidation of (JOLLES), A., i, 331.
crystalline, from the white of crows' eggs (WORMS), A., i, 65.
from yolk of egg, carbohydrate groups in (NEUBERG), A., i, 192.
crystalline, from the serum of horses' blood (MAXIMOWITSCH), A., i, 66.
new test for, in urine (POLLACCI), A., ii, 369.
- Albumin, acid-**, estimation of, in digestive mixtures (HAWK and GIES), A., ii, 635.
- Albumin, egg-**, formation and estimation of iodic and hydroiodic acids in the iodination of (SCHMIDT), A., i, 251.
action of alkali hydroxides on (PAAL), A., i, 653.
acetone from crystallised (ORGLER), A., i, 407.
phosphoric acid esters from (BECHHOLD), A., i, 331.
- Albumins** of white of egg (LANGSTEIN), A., i, 65.
detection of, in urine (PORTES and DESMOULIÈRE), A., ii, 236.
- Albumins,** nitrated (LOEW), A., i, 65.
- Albumin-like substances,** synthesis of (WALTHER), A., i, 203.
- Albuminoids.** See Proteids.
- Albumoid** of bone (HAWK and GIES), A., i, 408; ii, 518.
- Albumose,** crystalline urinary (GRUTTERINK and DE GRAAFF), A., ii, 276.
- Glyco-albumose** and **Thio-albumose** (PICK), A., ii, 673.
- Albumoses,** change produced in, by the gastric mucous membrane (GLAESNER), A., i, 156.
action of papain and rennin on (KURAËFF), A., i, 731.
- Alcaptonuria** (MITTELBACH), A., ii, 160; (MEYER), A., ii, 417.
- Alcohol.** See Ethyl alcohol.
- Alcohol,** $C_6H_{14}O$, from the hydrocarbon C_6H_{12} (DELACRE), A., i, 79.
- Alcohol,** $C_8H_{16}O$, from the action of nitrous acid on the amine $C_8H_{17}N$ (SPERANSKI), A., i, 342.
- $C_9H_{16}O$, from the action of sodium on tetrahydro-*p*-tolyl methyl ketone (WALLACH and RAHN), A., i, 723.
- $C_9H_{18}O$, from the reduction of pulegone (WALLACH and THEDE), A., i, 724.
- $C_{25}H_{34}ON_3$, ethers of, and compound of, with phenol (FISCHER and WEISS), A., i, 402.
- Alcoholic fermentation.** See Fermentation.
liquids, estimation of fusel oil in (BECKMANN), A., ii, 178.
- Alcohols,** synthesis of, by means of magnesium organic compounds (GRIGNARD), A., i, 142; (KONOWALOFF), A., i, 336.
formation of, by the electrolysis of salts of the fatty acids (HOFER and MOEST), A., i, 736.
decomposition of (NEF), A., i, 8.
etherification of (FISCHER and WEISS), A., i, 402.
quantitative etherification and estimation of (VERLEY and BÖLSING), A., ii, 54.
action of, on the sodium compounds of other alcohols (GUERBET), A., i, 657.
action of, on esters (HENRY), A., i, 736.
action of, on quinone (KNOEVENAGEL and BÜCKEL), A., i, 106.
action of zinc methyl on (TOLKATSCHEF), A., i, 9.
transformation of, into unsaturated hydrocarbons (ZELINSKY and ZELIKOFF), A., i, 2.
- Alcohols, cyclic,** heat of combustion of (ZUBOFF), A., i, 144.
- tertiary, syntheses of, by means of organo-magnesium compounds (ZELINSKY and GUTT), A., i, 70.
- Alcohols, fatty,** higher, condensation of (MARKOWNIKOFF and ZUBOFF), A., i, 5.
monohydric, and their ethers and metallic derivatives, dissociation of (NEF), A., i, 6.
and their aqueous solutions, flashing points of (RAIKOW), A., i, 583.
- Alcohols, lower,** properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTEY), T., 739; P., 1902, 105.
properties of mixtures of, with water (YOUNG and FORTEY), T., 717; P., 1902, 105.
- Alcohols, primary,** synthesis of (GRIGNARD and TISSIER), A., i, 198; (BLAISE), A., i, 357.

Alcohols, secondary, with an acetylenic linking, synthesis of (MOUREU and DESMOTS), A., i, 289.
 action of nitric acid on (PONZIO), A., i, 184.

Alcohols, unsaturated, and saturated glycols, isomerisation of (LIEBEN), A., i, 336; (KONDAKOFF), A., i, 583.

Alcohols and Phenols. See also:—
 7-Acetoxy-2-phenyl-4-benzyl-1:4-benzopyranol.
 4-Acetylaminophenol.
 Acetylcarbinol (*acetol*).
 Allyl alcohol.
 β -Allylbenzene glycol.
 Amyl alcohols.
 Anthragallol.
 Anthranols.
 Arabitol.
 Aspidinol.
 Benzhydrol.
 Benzhydryl-5-fluorenol.
 1:4-Benzopyranols.
 4-Benzoylaminophenol.
 Benzoylthymol.
 6-Benzoyl-1:2:4-xylenol.
 6-Benzoyl-1:4:2-xylenol.
 Benzyl alcohol.
 Boletol.
 Borneols.
 Butyl alcohols.
 Butylene chlorohydrins.
 α -*iso*Butyl- β -*isopropyltrimethylene* glycol.
 Camphanylcarbinol.
 Camphenylcarbinol.
 Camphyl glycols.
 Catechol.
 α *iso*Chavibetol.
 Chlorohydrins.
 Cholesterols.
 Chrysanthrol.
 Cineol.
 Cresols.
 ψ -Cumenol.
 Decinyl alcohol.
 Decyl alcohol.
 $\alpha\gamma$ -Decylene glycol.
 Dehydrocamphylcarbinol.
 Dehydromenthylcarbinol.
 Dehydropyropynopinacolyl alcohol.
 Dibutyl alcohol.
 Diethylcarbinol.
 Diheptyl alcohol.
 Dihydroisoporphyl glycols.
 1:5-Dihydroxyanthranol.
 Dihydroxydibenzylmesitylene.
 Dihydroxy-2:4-diphenyl-1:4-benzopyranols.
 2:4-Dihydroxydiphenylmethane.
 Dihydroxyhexane.
 Dihydroxyhydroanthranols.

Alcohols and Phenols. See:—
 Dihydroxymethyl*tert*butylallylcarbinol.
 2:3-Dihydroxynaphthalene.
 Dihydroxynonane.
 9:10-Dihydroxyphenanthrene.
 Dihydroxy-2-phenyl-1:4-benzopyranols.
 Dihydroxy-2-phenyl-4-benzylidene-1:4-benzopyranols.
 Dimethoxyanhydroglycogalol.
 $\alpha\beta$ -Dimethoxydihydro*iso*eugenol.
 2:4-Dimethoxydimethyl-3-methyl- and 5-bromomethyl-1-phenol.
 3:5-Dimethoxy-2-methylcarbinol-6-aminophenol.
 Dimethoxy-2-phenyl-4-benzylidene-1:4-benzopyranols.
 Dimethyl*iso*amylcarbinol.
 Dimethylheptenol.
 $\beta\epsilon$ -Dimethylhexane- $\beta\epsilon$ -diol.
 1:3-Dimethylcyclohexanol.
 Dimethylhydroxyethylamine.
 2- α -Dimethylolethylquinoline.
 2-Dimethylolmethyl-3-methylquinoline.
 Dimethylpentadecylcarbinol.
 1:3-Dimethylcyclopentanol.
 Dimethylpinacone.
 Dinaphthapyranol.
 Dinaphthaxanthhydrol.
 Dinaphthylene glycol.
 2:2'-Diphenol.
 Diphenylacetylenecarbinol.
 Diphenyl-*p*-anisylcarbinol.
 $\alpha\epsilon$ -Diphenyl- α -pentanol.
 Dipicraminophenol.
 2:5-Dipropoxyquinol.
 Durylene glycol.
 Erythritols.
 Ethanolmethylamine.
 Ethyl alcohol.
 Ethylcatechol.
 Ethylene glycol.
 Ethylphenols.
 3-Ethylpiperidyl-4-ethanol.
 3-Ethylpyridyl-4-ethanol.
 3-Ethyl-4-pyridylpropanediol.
 Eugenol.
 α *iso*Eugenol.
 Fenchyl alcohol.
 Furfuryl alcohol.
 α -Furfuryl- β -octinyl alcohol.
 α -Furfuryl- β -octinylcarbinol.
 Furfurylphenylacetylenecarbinol.
 Geraniol.
 Gluco-*o*-hydroxyphenylethylcarbinol.
 Glycerol.
 Guaiacol.
 γ -*iso*Heptanol.
 Heptylene glycol.
 Hexahydroxydiphenyl.

Alcohols and Phenols. See :—

$\beta\epsilon$ -Hexanediol.
Hexyl alcohols.
Hexylene glycol.
p-cycloHexylphenol.
Hydro- α -anthrol.
Hydrobenzoin.
Hydroquinizarol.
p-Hydroxybenzyl alcohol.
1- α -Hydroxybenzyl-4-methylcyclohexanol-2.
4- α -Hydroxybutyl-1:3-dimethylbenzene.
2- α -Hydroxybutyl-1:3:5-trimethylbenzene.
1-Hydroxycamphepane.
Hydroxy- ψ -cumyl alcohols.
Hydroxy- ψ -cumylene *m*-glycol.
Hydroxydibenzylanthracene.
 α -Hydroxydihydro*iso*eugenol.
7-Hydroxy-2-*p*-dimethylanilinonaphthalene.
4- α -Hydroxyethyl-1-ethylbenzene.
4- α -Hydroxyethyl-1-mono- and -1:3-di-methylbenzenes.
Hydroxyethylnitrocarbamide.
 α -Hydroxy- ρ -ethylphenol.
 α -Hydroxyhexadecyl-1:3-di- and -1:3:5-tri-methylbenzenes.
Hydroxyhydroanthranol.
Hydroxymesitylene.
 α -Hydroxy- β -methoxydihydro*iso*eugenol.
Hydroxyphenanthrenes.
Hydroxyphenozone.
7-Hydroxy-2-phenyl-1:4-benzopyranol.
7-Hydroxy-2-phenyl-4-benzylidene-1:4-benzopyranol.
7-(or 5-)Hydroxy-2-phenyl-4-benzylidene-5-(or 7-)methyl-1:4-benzopyranol.
o-Hydroxyphenylethylearbinol.
Hydroxyphenylpyridazine.
2-Hydroxy-3-phenylquinoxaline.
4- α -Hydroxypropyl-1-methylbenzene.
2- α -Hydroxypropyl-1:3:5-trimethylbenzene.
Hydroxytetraphenylmethane.
2-Hydroxy-1:3:5-trimethylbenzene.
p-Hydroxytriphenylcarbinol.
p-Hydroxytriphenylmethane.
Hydroxy-xylene.
d-Linalol.
Mannitol.
Menthol.
Menthylcarbinol.
Menthyl glycol.
2:3-Methoxynaphthol.
3-Methoxyphenol.
7-Methoxy-2-phenyl-1:4-benzopyranol.

Alcohols and Phenols. See :—

7-Methoxy-2-phenyl-4-benzylidene-1:4-benzopyranol.
7-(or 5-)Methoxy-2-phenyl-4-benzylidene-5-(or 7-)methyl-1:4-benzopyranol.
p-Methoxytriphenylcarbinol.
Methyl alcohol.
m-Methylbenzenyl-*p*-amino-*m*-thioxylenol.
Methyl dibromoxyloquinol.
Methylene bisdimethylphloroglucinol.
Methylethylbutylcarbinol.
1-Methyl-3-ethylcyclopentanol-3.
Methylheptenol.
Methyl- β -heptynylearbinol.
Methylheptylcarbinol.
Methylnonylcarbinol.
Methyl- β -octinylcarbinol.
2- α -Methylolethyl-3-methylquinoline.
 β -Methylpentane- $\beta\beta$ -diol.
Methylcyclopentanols.
Methylphloroglucinol.
Methylpropylcarbinol.
 ϵ -Methyl- β -isopropyl- $\alpha\gamma$ -hexylene glycol.
1-Methyl-4- ψ -quinol.
Naphthols.
Noninyl alcohol.
Nonyl alcohol.
Octenyl alcohol.
Octyl alcohols.
Octylene glycols.
Pentaerythritol.
Phenantraquinol.
2-Phenanthrol.
Phenol.
Phenols.
 ψ -Phenols.
Pheno- α -naphthaxanthhydrol.
Phenylacetylenemethylcarbinol.
5-Phenyl-3:5-dimethylphenonaphth-acridol.
 α -Phenyl- β -heptynylearbinol.
1-Phenyl-3-methylbenziminazoleol.
Phenylmethylpropylearbinol.
 α -Phenyl- β -octinyl alcohol.
Phloroglucinol.
Phytosterol.
Pinacone.
Propyl alcohols.
*cyclo*Propylidimethylcarbinol.
Propylene glycol.
Pulenol.
Pyridyl dichlorohydroxyquinol.
2-Pyridylmethylcarbinol.
2-Pyridylpropanediol.
Pyrodipinopinacol alcohol.
Pyrogallol.
Quinol.
 ψ -Quinols.
Resorcinol.

Alcohols and Phenols. See :—

Rhamnitol.
Sabinene alcohol.
Saligenin.
Sitosterol.
Storesinol.
Styresinol.
Styrylmethylcarbinol.
Terpene alcohols.
 $\Delta^{8:9}$ -Terpen-1-ol.
Terpineols.
Tetra-acetylgluco-*o*-hydroxyphenyl-ethylecarbinol.
Tetra-acetylmannitol.
Tetramethylidiaminobenzhydrol.
1:3:4:5-Tetramethylbenzimidazoleol.
Thymol.
Toluquinol.
p-Tolylamino-*m*-hydroxybenzyl alcohol.
Trianisylcarbinol.
*sec*Tricapryl alcohol.
1:8:9-Trihydroxyhexahydrocymene.
2:3:8-Trihydroxynaphthalene.
1:8:9-Trihydroxyterpane.
Trihydroxyterpineol.
3:5:5-Trimethyl- $\Delta^{2:6}$ -dihydrocatechol.
Trimethylene carbinol.
2:4:4-Trimethylcyclohexanol.
Triphenylcarbinol.
Tripropylcarbinol.
Undecane- $\beta\gamma$ -diol.
Undecyl alcohol.
p-Vinylphenol.
Xanthhydrol.
Xylenols.
Xyloquinhydrone.
Xyloquinols.

Alcohols. See also Glycols.

Paraldehyde, action of, on *o*-nitroso-benzoic acid (CIAMICIAN and SILBER), A., i, 378.

Aldehydehydrazones, nitro-, reduction of (BAMBERGER and FREI), A., i, 404.

Aldehydes, R \cdot CHMe \cdot CHO, preparation of (BOUGAULT), A., i, 452.

formation of, by the electrolysis of salts of the fatty acids (HOFER and MOEST), A., i, 736.

formation of, from β -chloro-alcohols (KRASSUSKY), A., i, 425.

formation of, from hydrochlorides of imino-ethers (HENLE), A., i, 790.

formation of, from haloid derivatives of olefines (KRASSUSKY), A., i, 261.

synthesis of (BOUVEAULT and WAHL), A., i, 532.

isolation of (CHEMISCHE FABRIK VON HEYDEN), A., i, 376; (NEUBERG and NEIMANN), A., i, 572; (FREUND and SCHANDER), A., i, 696.

Aldehydes, behaviour of, towards Tesla rays (KAUFFMANN), A., ii, 191.
reduction-potential of (BAUR), A., i, 77.

decomposition of (NEF), A., i, 8.
interaction of, with acid chlorides (LEES), P., 1902, 213.

action of acid chlorides on, in presence of zinc chloride (DESCUDÉ), A., i, 149, 339, 451.

condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 819.

action of, on hydramines (KNORR and MATTHES), A., i, 56.

action of, on hydrazobenzene and its substitution derivatives (RASSOW and RÜLKE), A., i, 404.

condensation of, with acetylenic hydrocarbons (MOUREU and DESMOTS), A., i, 289.

condensation of, with methylamine and ethylamine (ANDREE), A., i, 210.
additive compounds of, with phenylhydrazine-*p*-sulphonic acid (BILTZ, MAUÉ, and SIEDEN), A., i, 571.

action of, on 6-phenyl-2-methylpyridine (THORAUSCH), A., i, 234; (ÖLLENDORFF), A., i, 827.

test for, in urine (RIEGLER), A., ii, 585.

Aldehydes of the acetic series, synthesis of, by means of nitromethane (BOUVEAULT and WAHL), A., i, 591.

Aldehydes, aromatic, influence of intranuclear substituents on the reactivity of (POSNER), A., i, 622.

action of solid alkalis on (RAIKOW and RASCHTANOW), A., i, 721.

condensation of, with amines (DIMROTH and ZOEPPRITZ), A., i, 292.

condensation of, with malononitrile (WALTER), A., i, 373.

condensation of, with nitromethane (BOUVEAULT and WAHL), A., i, 682.

condensation of, with pyrroles and ethereal pyrrolecarboxylates (FEIST), A., i, 490; (VORLÄNDER), A., i, 562.

acetates from (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 102.

Aldehydes. See also :—

Acetaldehyde.

Aldol, C₁₃H₁₆O₂.

Anisaldehyde.

Aromadendral.

Benzaldehyde.

Benzylidenedivanillin.

Berberinaldehyde.

Bromal.

Butaldehydes.

Camphenaldehyde.

Carbonylchloroaldehydes.

Chloral.

- Aldehydes.** See:—
 Cinnamaldehyde.
cycloCitrals.
 Cuminaldehyde.
n-Decaldehyde.
 3:4-Dimethoxyhydratropaldehyde.
 Dimethoxymethylenedioxyhydratropaldehyde.
p-Dimethylaminobenzaldehyde.
 Diphenylacetaldehyde.
αβ-Diphenyl-αα-diphenylthiolethane-2-al.
m-Ethoxybenzaldehyde.
 Formaldehyde.
 Furfuraldehyde.
 Heptaldehyde.
isoHexaldehyde.
 Hydroxaldehydes.
 Hydroxybenzaldehydes.
 Hydroxymethylsalicylaldehyde.
 Malonic dialdehyde.
 Mesoxalic semi-aldehyde.
 Metaformaldehyde.
o-Methoxybenzaldehyde.
p-Methoxyhydratropaldehyde.
 Methylglyceraldehyde.
 2-Methyl-5-isopropyl-tetra- and -hexahydrobenzaldehyde.
 Methylsalicylaldehyde.
n-Nonaldehyde.
n-Octaldehyde.
 Enanthaldehyde.
 Paraldehyde.
 Paraldol.
β-Phenylpropaldehyde.
 Piperonal.
 8-Quinolinealdehyde.
 Succinaldehyde.
 Succindialdehyde.
 Tolualdehydes.
 2:2:4-Trimethyl-tetra- and -hexahydrobenzaldehyde.
 Trioxymethylene.
isoValeraldehyde.
 Vanillin.
β-Aldehydic acids, optically active esters of (LAPWORTH and HANN), T., 1491, 1499; P., 1902, 144, 145.
Aldehydotrichloroquinodichloride, and its oxime and semicarbazone (BILTZ and KAMMANN), A., i, 162.
p-Aldehydohydrazobenzene, anilide of (ALWAY), A., i, 697.
2-Aldehydo-5:6-methoxybenzoylchloride (opianic chloride) (MEYER), A., i, 31.
8-Aldehydonaphthoic acid (naphthaldehydic acid), and its methyl ester (ZINK), A., i, 159.
 condensation of, with acetone and with acetophenone (ZINK), A., i, 34.
- Aldol,** $C_{13}H_{16}O_2$, from cinnamaldehyde and isobutaldehyde (MICHEL and SPITZAUER), A., i, 292.
Aldol (acetaldol), viscid, and **Paraldol** (NOWAK), A., i, 260.
Algæ, green, assimilation of carbon by a (CHARPENTIER), A., ii, 419.
Algæ, the wax of, and its relation to petroleum (KRAEMER and SPILKER), A., i, 333.
 fresh-water, effect of methylal on (BOUILHAC), A., ii, 40.
Alinit. See Agricultural Chemistry.
Alizarin methyl ether (GRAEBE and ADERS), A., i, 43.
Alizarin, α-amino-, acetyl and benzoyl derivatives of (SCHULTZ and ERBER), A., i, 299.
β-amino-, dibenzoyl derivative of (SCHULTZ and ERBER), A., i, 299.
bromo-β-amino- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 477.
Alkali, reaction of, with chloral hydrate (BÖTTGER and KÖTZ), A., i, 659.
 free, titration of, in presence of nitrites (ARNDT), A., ii, 630.
Alkali carbonates, action of higher fatty acids on (KLIMONT), A., i, 132.
 hydroxides, silicates and sulphates, analysis of mixtures of (LUNGE and LOHÜFER), A., ii, 105.
 chlorides, electrolysis of, with carbon anodes (SPROESSER), A., ii, 193.
 electrolysis of, with platinised electrodes (FOERSTER and MÜLLER), A., ii, 640.
 electrolysis of solutions of, current and energy efficiencies obtained in the (FOERSTER and MÜLLER), A., ii, 240.
 decomposition of (VOLNEY), A., ii, 70.
 compounds of, with aluminium chloride (BAUD), A., ii, 142.
 cyanamides (DEUTSCHE GOLD- & SILBER-SCHEIDE-ANSTALT), A., i, 854.
 hydroxides, behaviour of picric acid towards boiling (WEDEKIND and HAEUSSERMANN), A., i, 367.
 or hydrogen carbonate, estimation of, in presence of normal alkali carbonate (RIDENOUR), A., ii, 49; (NORTH and LEE), A., ii, 356.
 metals, peroxides of (CALVERT), A., ii, 10.
 thiocyanates, action of mercuric bromide on the (GROSSMANN), A., i, 749.
 works, electrical, analyses required for (JAMES and RITCHIE), A., ii, 474.
Alkalimeter, new form of (DAVIS), A., ii, 428.

- Alkalimetry**, gasometric method for (RIEGLER), A., ii, 696.
- Alkaline-earth metals**, arsenides of (LEBEAU), A., ii, 395.
- sulphides, phosphorescence of (DE VISSER), A., ii, 237.
- Alkali-proteid**, globulin as (WOLFF and SMITS), A., i, 67.
- Alkalies**, normal, in acidimetry (JUNGCLAUSSEN), A., ii, 46.
- solid, action of, on aromatic aldehydes (RAIKOW and RASCHTANOW), A., i, 721.
- microchemical test for acids and (EMICH), A., ii, 45.
- estimation of, in Portland cement and natural cements (STILLMAN), A., ii, 175.
- indirect estimation of, in waters (FISHER), A., ii, 474.
- Alkaloidal salts**, extraction of, from aqueous solutions (SPRINGER), A., ii, 542.
- Alkaloids** of *Argemone mexicana* (SCHLÖTTERBECK), A., ii, 101.
- of *Corydalis cava* (GADAMER, ZIEGENBEIN, and WAGNER), A., i, 306, 391.
- of *Solanum chenopodinum* (SAGE), A., ii, 282.
- of *Stylophorum diphyllum* (SCHLÖTTERBECK and WATKINS), A., ii, 101.
- extraction of, from acid solutions (SPRINGER), A., ii, 542.
- extraction of, from alkaline liquids (SPRINGER), A., i, 390.
- action of Caro's reagent on (SPRINGER), A., i, 485.
- intensifying action of, on oxidising agents (SCHAER), A., ii, 140, 603.
- natural immunity against (ELLINGER), A., ii, 162.
- compounds of, with thallic haloids and hydrazids (RENZ), A., i, 393, 822.
- limits of sensitiveness of precipitants of (SPRINGER), A., ii, 543.
- diacid, the alkalimetric factors of some (GORGIN), A., ii, 186.
- microchemical detection of (POZZI-ESCOT), A., ii, 483, 710; (SURRE), A., ii, 543.
- estimation of, in kola nut and its fluid extracts (WARIN), A., ii, 483.
- separation of, from urine (DOMBROWSKI), A., ii, 633.
- Alkaloids**. See also:—
- Adenine.
- Anhydrolupinine.
- Arecaine.
- Arecoline.
- Arginine.
- Atropine.
- Atrosine.
- Alkaloids**. See:—
- Benzoyllupinine.
- Berberine.
- Brucidine.
- Bruceine.
- Caffeine.
- Canadine.
- Cevadine (*ecravine*).
- Choline.
- Cinchonidine.
- Cinchonifine.
- Cinchonine.
- allo*Cinchonine.
- iso*Cinchonines.
- Cinchotine.
- Cinnamylquinine.
- Cocaine.
- l*-Coniine.
- iso*Coniine.
- iso*Corybulbine.
- Corycavamine.
- Corycavine.
- Corydaldine.
- Corydaline.
- Corydine.
- Corytuberine.
- Cotarnine.
- Creatine.
- Creatinine.
- Cynoglossine-Riedel.
- Cystine.
- Dehydrocorydaline.
- Dihydroberberine.
- Dimethyl-lupuline.
- 3:8-Dimethylxanthine.
- Diphylline.
- Econine.
- Epiosine.
- 8-Ethylxanthine.
- Eucaines.
- Guaiane.
- Histidine.
- Hydroxycinchotine.
- Hyoscine.
- Ibogaine.
- Ibogine.
- Iophine,
- Laudanine.
- d*-Lupanine.
- Lupanine.
- Lysatinine.
- Lysine.
- allo*Meroquinine.
- 1-Methyl-*l*-coniine.
- n*-Methylgranatamine.
- Methyl-lupuline.
- Methylmorphimethines.
- 8-Methylxanthine.
- Morphigenine.
- Morphine.
- Nicotianine.
- Nicotine.

Alkaloids. See :—

Oscine.
Oxyacetamine.
Oxymorphone.
Physostigmine.
Pilocarpine.
*8-iso*Propylxanthine.
Protopine.
Pyridinecholine.
Quinidine.
Quinine.
Salicylylquinidine.
i-Scopolamine.
Strychnidine.
Strychnine.
Stylopine.
Tanacetine-Riedel.
Tetrahydrobrucine.
Tetrahydrostrychnine.
1:3:8-Trimethylxanthine.
Tropine.
Veratrine.
Yohimbine.
Xanthine.
See also Ptomaines.

Alkyl bromides, velocity of combination of, with heterocyclic compounds (MENSHUTKIN), A., ii, 493.

Alkylacetylacetones, action of, on diazonium and tetra-azonium chlorides (FAVREL), A., i, 508.

Alkylamines, microchemical detection of (BEHRENS), A., ii, 634.

Alkylcyanoacetamides, preparation of (GUARESCHE), A., i, 819.

Alkyl groups, influence of, on the activity of halogenised benzenes (KLAGES and STORP), A., i, 670.

Alkylhydrazines, preparation of (STOLLE), A., i, 57.

Alkylmalonic acid, esters, action of ammonia on (FISCHER and DILTHEY), A., i, 269.

action of ethyl chlorofumarate on (RUHEMANN), T., 1212; P., 1902, 181.

Alkyloxy-acids, reactivity of (v. WALTHER), A., i, 528.

Alkyloxy group, velocity of substitution of a halogen by an, in aromatic halogen nitro-compounds (LULOFFS), A., i, 87.

Alkyltricarboxylic acids, synthesis of (BONE and SPRANKLING), T., 29; P., 1901, 215.

Allantoin, excretion of (MENDEL), A., ii, 276.

Allophane (?) from Kansas (ROGERS), A., ii, 463.

Allophanic acid, sodium derivative of the sodium salt (EPHRAIM), A., i, 269.

Alloys, formation of, and cathodic polarisation (COEHN), A., ii, 2.

Alloys, potentials of, and the formation of superficial layers (HABER and SACK), A., ii, 441; (HABER), A., ii, 638.

binary, complete freezing point curves of (KAPP), A., ii, 145.

method for separating crystals from (VAN ELJK), A., ii, 496.

white metal, analysis of (IBBOTSON and BREARLEY), A., ii, 52.

Allyl alcohol, action of dry sulphur dioxide and ammonia on (GOLDBERG and ZIMMERMANN), A., i, 738.

Allylamine, bromo- (RUDZICK), A., i, 24.

β-Allylbenzene, bimolecular (KLAGES), A., i, 667.

and its bromides and glycol (TIFENEAU), A., i, 433; (KLAGES), A., i, 667.

action of hypochlorous acid on (TIFENEAU), A., i, 449.

Allylmesitylene, and its nitrosochloride (KLAGES), A., i, 612.

1-Allyltetrahydroquinoline and its hydrobromide (WEDEKIND), A., i, 234.

Aloes, Barbados, soluble hydroxy-anthraquinone glucoside in (AWENG), A., i, 814.

detection of (LÉGER), A., ii, 484.

Aloin, detection of (BOURQUELOT), A., ii, 483.

Aloins, constitution of (LÉGER), A., i, 685.

and their haloid derivatives, action of sodium peroxide on (LÉGER), A., i, 549.

Aloin red (SCHAER), A., i, 168.

Altalite from Tuolumne Co., California (EAKLE and SCHALLER), A., ii, 213.

Aluminium, pasty condition of, near its melting point (GRANGER), A., ii, 608.

action of, on salt solutions and on molten salts (FORMENTI and LEVI), A., ii, 141.

mercury couple, use of, as a halogen carrier (COHEN and DAKIN), T., 1324; P., 1902, 183.

Aluminium alloys (CAMPBELL and MATHEWS), A., ii, 399.

with copper (GUILLET), A., ii, 21.

with iron and with manganese (GUILLET), A., ii, 264.

with magnesium (BOUDOUARD), A., ii, 141.

with tin (GUILLET), A., ii, 84.

with zinc, thermal study of (LUGININ and SCHÜKAREFF), A., ii, 259.

Aluminium bromide, electrical conductivity and electrolysis of, in ethyl bromide (PLOTSKOFF), A., ii, 639.

- Aluminium**, compounds of, with bromine and carbon disulphide (PLOTNIKOFF), A., ii, 21.
 chloride, action of, on amylenes (ASCHAN), A., i, 749.
 compounds of, with the alkali chlorides (BAUD), A., ii, 142.
 anhydrons, compounds of, with hydrogen sulphide (BAUD), A., ii, 505.
 oxide (*alumina*), crystallised, preparation of, in the electric furnace, and some bye-products (GINTL), A., ii, 141.
 reduction of, by calcium carbide (TUCKER and MOODY), A., ii, 21.
 action of ferric oxide on, at white heat (WARTH), A., ii, 209.
 compounds of, with chromium sesquioxide (DUBOIN), A., ii, 400.
 silicate, hydrated (GLINKA), A., ii, 511.
 chlorosulphate (RECURA), A., ii, 563.
- Aluminium**, estimation of, volumetrically, in alum (WHITE), A., i, 476.
- Alums**, solubility of, as a function of two variables (LOCKE), A., ii, 21.
 estimation of, volumetrically, of aluminium and of free and combined sulphuric acid in (WHITE), A., ii, 476.
- Amalgams**. See Mercury alloys.
- Aminylbenzene**, and its dibromide (KLAGES), A., ii, 669.
- Amides**, hydrolysis of, by ferments (GÖNNECKEN), A., i, 512.
 conversion of, into amines (GRAEBE and ROSTOVZEFF), A., i, 663.
 acid, formation of, from imino-ethers (WISLICENUS and KÖRBER), A., i, 211.
 compounds of, with mercury, and with silver (LEY and SCHAEFER), A., i, 358.
 acid and basic, reaction between, in liquid ammonia (FRANKLIN and STAFFORD), A., i, 748.
 true, and the so-called isoamides (AUWERS), A., i, 14.
- Amidine**, cyclic, $C_{23}H_{25}N_3$, and its hydrochloride and platinichloride (SABANÉEFF, RAKOWSKY, and PROSIN), A., i, 604.
- Amidogen**, replacement of the diazo-group by (WACKER), A., i, 698.
- Amine**, $C_8H_{17}N$, from the reduction of β -methylcyclopentanemethylidene-carboxylic-nitrile (SPERANSKI), A., i, 342.
- Amines**, formation of, from amides (GRAEBE and ROSTOVZEFF), A., i, 663.
 formation of, from hydrochlorides of imino-ethers (HENLE), A., i, 790.
- Amines**, formation of, from nitro-compounds (SABATIER and SENDERENS), A., i, 701.
 formation of, from aromatic nitro-compounds (BOEHRINGER & SÖHNE), A., i, 715.
 compounds of, with bismuth chloride (VANINO and HAUSER), A., i, 308.
 compounds of, with thallium haloids (RENZ), A., i, 393.
- Amines**, aromatic, critical constants and molecular complexity of (GUYE and MALLET), A., ii, 243, 303.
 condensation of, with aromatic aldehydes (DIMROTH and ZOEPFEL), A., i, 292.
 action of diazonium salts on (MORGAN), T., 86, 1376; P., 1901, 236; 1902, 185.
 interaction of, with aliphatic disulphonic chlorides (AUTENRIETH and RUDOLPH), A., i, 22.
 action of, on phthalic chloride (KUHARA and FUKUI), A., i, 34.
 acetylation of (PAWLEWSKI), A., i, 209.
 compounds of, with *p*-chlorophenylacetic acid, amide, and nitrile (v. WALTHER and RAETZE), A., i, 466.
 compounds of, with sodium tetraazidotolylsulphonate (SEYEWETZ and BIOT), A., i, 509.
 primary, in which the para-position is occupied, condensation of, with tetramethyl*o*aminobenzhydrol (GUYOT and GRANDERYE), A., i, 398.
 mono- and di-alkylated (BADISCHE ANILIN- & SODA-FABRIK), A., i, 91.
 thiosulphates of (WAHL), A., i, 145.
 benzenoid, relation between physical constants and constitution in (HOPKINSON and LIMPACH), A., i, 90.
 fatty, crystallography of platinichlorides of (RIES), A., i, 747.
 primary, dithiocarbamic esters from (DELÉPINE), A., i, 595.
 test for (FENTON), P., 1902, 244.
 primary and secondary, aminobenzyl cyanides and iminobenzoyl cyanides from (SACHS and GOLDMANN), A., i, 780.
 tertiary, $C_9H_{15}N$, from trimethylpiperidine (b. p. 166°) quaternary iodides (WALLACH and GILBERT), A., i, 80.
 action of cyanogen bromide on (v. BRAUN and SCHWARZ), A., i, 365.

Amines, tertiary, action of, on esters of organic acids (WILLSTÄTTER and KAHN), A., i, 662.
Amines. See also :—
 Acetylenetriphenyltriamine.
 Acetyl-mono- and -di-glucosamine.
 Acetyl-*m*-hydroxyphenyl-*p*-tolyl-amine.
 Acetylethylene-*p*-phenylenediamine.
 Acetylphenylhydroxylamine.
 Acylanines.
 Alkylamines.
 Allylamine.
 Anhydro-acetyl- and -benzoyl-9-amino-10-hydroxyphenanthrenes.
 Anhydroformaldehydeaniline.
 Aniline.
 Anilino-3:5-diaminophenazothionium chloride.
 ϵ -Anilinoamylphthalimide.
 Anilinocitraconanil.
 Anilinodimethylpyrimidines.
 2-Anilinohydrocarbostyryl.
 α -Anilinomethylsuccinanils.
 Anilino- β,β' -naphthaphenazine.
 Anilinonaphthaphenazothionium anhydride.
 3-Anilinophenazothionium salts.
 3-Anilinophenazonium salts.
 Anilinophenylmethylenecamphoranol.
 6-Anilino-3-phenyl-5-methylpyridazine.
 3-Anilino-4-phenyl-5-triazolone.
 Anisidines.
 Anisole, *diamino*.
 Anthragallolamine.
 Anthraquinone, amino-
 Arylamines.
 Benzaldehydeanilines.
 Benzaldehyde- β -naphthylamine.
 Benzaldehydesemicarbazine-2:4-nitro-amine.
 Benzaldoxime, *diamino*.
 Benzamidine.
 Benzidine.
 Benzophenoneaniline.
 Benzoyl-*o*-aminodiphenylamine.
 Benzoyldiphenylbenzenylamidine.
 Benzoyl-*o*-flavaniline.
 Benzylalkylanilines.
 Benzylamine.
 Benzylaniline.
 Benzyl cyanides, amino-
 Benzyl-di-ethyl- and -propyl-amines.
 Benzylethylaniline.
 Benzylidene-*m*-aminoacetophenone, *m*-amino-
 Benzylideneaniline.
 Benzylidenebenzidine.
 Benzylidenedimethyl-*p*-phenylenediamine.

Amines. See :—
 Benzylideneglucosamine.
 Benzylidene-methyl- and -ethyl- amines.
 Benzylidene- α -naphthylamine.
 Benzylidene-*m*-nitroaniline.
 Benzylidenetoluidines.
 Benzyl- α -naphthylamine.
 Benzyl-*p*-nitroaniline.
 Benzyl-*o*-toluidine, 4-amino-
 Benzyl-*p*-toluidine.
 Bisdianaphthaxanthoneamine.
 Bis-2:4-dinitrobenzylidenebenzidine.
 Butanolamines.
*iso*Butyryl-*o*-flavaniline.
 Camphidine.
*iso*Camphoramine.
 α -Carbaminethiobutyranilide.
 α -Carbaminethiolactanilide.
 Carbonyl-2:2'-diamino-4:4'-dimethyl-diphenyl.
 Carbonyl-2:2'-diaminodiphenyl.
 Chitosamine.
 Cinnamylidene-methyl- and -ethyl- amines.
 Cumylidene-methylamine and -ethylamine.
 Cumyl-methylamine and -ethylamine.
*iso*Dehydrothio-*m*-xylidine.
 Desylamine.
 2:4'-Diacetoxybenzophenoneaniline.
 Diamines,
 3:4-Dianilino- β -naphthaphenazothionium anhydride.
 Dianilinophenazothionium chloride.
 3:9-Dianilinophenazonium chloride.
 Di-*o*-anisylguanidine, amino-
 Dibenzoyl-*p*-aminodiphenylamine.
 Dibenzoyl-*o*-toluidine.
 Dibenzylallylamine.
 Dibenzylamine.
 Dibenzylhydrazine, *as o*-diamino-
 Dicarbaulinocarbanilinodixyl- methylenediamine.
 Dicarbanilinodiphenylmethylenediamine.
 Di- ψ -cumylformamidine.
 3:4-Diethylidiaminotoluene.
 Diethylaniline.
 3:3'-Diethylidiphenyl, 4:4'-diamino-
 Diethyl- β -naphthylamine.
 Diethyl-*o*-toluidine, 4-amino-
 Dihydrocampholene, α -amino-
 Dihydroxybenzylideneaniline.
 Di-*p*-hydroxydiphenyl-*m*-phenylenediamine.
 Di-9-hydroxyphenanthryl-10-amine.
 3:7-Dimethylacridine, 2:8-diamino-
p-Dimethylaminoacetophenone, *o*-amino-
p-Dimethylaminobenzylidene-*m*-aminoacetophenone.

Amines. See :—

p-Dimethylaminobenzylidene-*p*-nitroaniline.
 Dimethyl-*p*-diaminodiphenylamine.
p-Dimethylaminohexene.
 Dimethyl-*p*-amino-*m*-and-*p*-hydroxydiphenylamine.
 2-Dimethylamino-12-methylpheno-1:2-naphthacridinium salts.
 3'-Dimethylaminopheno-3-amino-oxyazines.
 2-Dimethylaminopheno-1:2-naphth-acridine.
as-Dimethyl-*diaminophenotolazo-*-oxonium chlorides.
 Dimethylaminotolaminonaphthazo-oxonium hydride.
as-Dimethyl-*diaminotolonalaphthazo-*-oxonium chlorides.
 3:4-Dimethyl-*diaminotoluene*.
 Dimethylaniline.
 Dimethyl-*diethyl-diaminophenotolazo-*-oxonium iodide.
 4:4'-Dimethyl-*diphenyl*, 2:2'-diamino-*Dimethylhydroxyethylamine*.
Dimethyl-β-naphthylamine.
 1:3-Dimethyl-*m*-phenylenediamine.
 2:4-Dimethylpyridine, 6-amino-*Dimethylpyrimidines*, amino-*2:4-Dimethylpyrimidylethylene-*-diamine.
Dimethyl-α-toluidine, 4-amino-*Dimethyltoluidines*.
α-Dinaphthylamine.
Di-β-naphthylformamide.
Di-β-naphthylguanidine, amino-*Diphenyl*, 2:2'-diamino-*Diphenylamine*.
Diphenyltetra-aminobenzene, di-amino-*Diphenylchlorophenylene-p-diamines*.
Diphenylformamide.
Diphenylguanidine, amino-*Diphenylmethane*, di-amino-*Diphenylmethylamine*.
Diphenylmethylenediamine.
Diphenyl-4:6-dinitro-1:3-phenylene-diamine, di-amino-*Diphenyloxyformamide*.
*Diphenyl-*p*-tolylaminotriazole*.
 4:4-Dipyrimidylethylenediamine.
Dithymolamine.
*Di-*p*-tolyl-*diaminodihydroxydiphenyl-methane**.
Ditolylformamide.
*Di-*p*-tolylguanidine*, amino-*Ditolylmethylenediamines*.
Ditolylmethylenedihydroxylamines.
*Di-*p*-tolyl-*oxyformamide**.
Dixylylformamidines.
Dixylylmethylenediamine.
Dixylylmethylenedihydroxylamines.

Amines. See :—

Dixylyloxyformamidines.
Ethanolmethylamine.
Ethenyl-3:4-tolylenediamine.
Ethylamine.
Ethylaniline.
Ethylenediamine.
Ethyl-β-naphthylamine.
m-Ethyltoluidine.
n-Ethyltolylenediamines.
Fluorene, amino-*Fluorindine*, C₃₆H₂₁N₅Cl₄.
Formamidines.
N-Formyl-β-phenylhydroxylamine.
Furfurylidene-methylamine and -ethylamine.
Furfuryl-methylamine and -ethylamine.
Glucosamine.
Glycocyamidine.
Hexahydrobenzylamine.
*Hexahydro-*m*-tolylenediamine*.
*Hexahydro-*m*-xylylenediamine*.
isoHexane, ββ-diamino-*Homocamphanylaniline*.
Homocamphenylaniline.
Hydrindamine.
Hydrocinnamyl-methyl- and -ethyl- amines.
p-Hydroxybenzaldehydeaniline.
*Hydroxy-*ψ*-cumylanilines*.
5-Hydroxydimethyl-α-naphthylamine.
*4-Hydroxydiethyl-*o*-toluidine*.
*4-Hydroxydimethyl-*o*-toluidine*.
Hydroxydiphenylamine.
Hydroxylamine.
*3-Hydroxymethyl-2-aminobenzylidene-*p*-nitroaniline*.
9-(or 10)-Hydroxyphenanthrene, amino-*5-p-Hydroxyphenyl-2-aminomethyl-*pheno-αβ-naphthacridine**.
p-Hydroxyphenylethylamine.
2-β-Hydroxy-β-phenylethylpyridine, *p*-amino-*3-Hydroxy-2-phenyl-6-(or 7)-methyl-quinoxaline*, amino-*p-Hydroxyphenyl-α-naphthylamine*.
p-Hydroxyphenylpyridazine, amino-*Hydroxyphenylquinoxalines*, amino-*m-Hydroxyphenyl-*p*-tolylamine*.
Leucauramines.
Lophine, amino-*p-Methoxy-2-stilbazole*, amino-*Mesitylene*, triamino-*Methylamine*.
*2-Methylaminobenzyl-*p*-nitroaniline*.
o-Methylaminodiphenylamine.
Methylaniline.
Methyl-bromo- and -chloro-ethyl- amines.
Methyleneaniline.

Amines. See :—

Methylenebisaniline.
 Methylenediamine.
 3·2-Methylenimino-benzyl- and
 -benzylidene-*p*-nitroanilines.
 Methylheptenylamine.
p-Methylhexahydrobenzylaniline.
 4-Methylpheno- β -naphthaeridine, 3-
 amino-.
 2-Methyl-5-isopropylhexahydro-
 benzylamine, -aniline, -dimethyl-
 amine, and -diethylamine.
 4-Methylpyrimidine, amino-.
 4-Methylstilbazole, *p*-amino-.
 Methyltoluidine.
 1-Naphthol, 8-amino-.
 Naphthylamines.
 α -Naphthyldimethylamine.
 Naphthylenediamines.
 α -Naphthylmethylamine.
 β -Nonylamine.
 2:4:2':4'-Octamethyltetra-amino-
 ditolyl-5':5'-methane.
 3-Oxyaninophenylphenazonium an-
 hydride.
 Pentanolamines.
 Phenanthrene, amino-.
 Phenanthrylamines.
 Phenazoxone, 3:5-diamino-.
 Phenetidine.
 Pheno- α -aminocycloheptane.
 Phenol, *o*-amino-.
 Phenonaphthaeridine, amino-.
 Phenoxozone, diamino-.
 Phenylaminophenazine, amino-.
 Phenyldecarbylamine.
 Phenylidimethylaminophenotolazo-
 oxonium chloride.
 Phenylenediamines.
 Phenylenedicarbylamines.
m-Phenylen-1:3-dimethylidinitro-
 amine.
 β -Phenylethylamine.
 Phenylcyclohexane, *p*-amino-.
 Phenylhydroxylamine.
 Phenyl-2:4-lutidylalkine, *p*-amino-.
 5-Phenyl-3-methyl-5:12-dihydropheno-
 naphthaeridine, 2-amino-.
 5-Phenyl-3-methylphenonaphth-
 acridine, 2-amino-.
 Phenylmethylnitroamine.
 5-Phenyl-2-mono- and -di-alkylamino-
 3-methylphenonaphthaeridines.
 5-Phenyl-2-mono- and -di-alkylamino-
 phenonaphthaeridines.
 Phenylnitroamine.
 Phenyl-2 phenanthrylamine.
 5-(or 3)-Phenylpyrazole, amino-.
 1-Phenyl-3-*p*-tolyloxyformamidine.
 Phthalylhydroxylamine.
 Phthalyl-2:4-toluenediamines.
 Pipecoline, 1-amino-.

Amines. See :—

ϵ -Piperidinoamylamine.
 Piperonylene-methyl- and -ethyl-
 amines.
 Piperonyl-methyl- and -ethyl-amines.
 Pyrazole, 4-amino-.
 Pyridine, amino-.
 Pyrimidine, amino-.
 Pyrogallolaldehydeaniline.
 Pyrrolidines, amino-.
 Resorcinaldehydeaniline.
 Salicylaldehydeaniline.
 Stilbazole, amino-.
 4:4'-Tetraethylidiaminodiphenyl-
 methane.
 4:4'-Tetramethylidiaminodiphenyl-
 methane, 2-amino-.
 2:8-Tetramethylidiamino-10-methyl-
 acridinium nitrate.
 Tetramethylidiaminophenotolazo-
 oxonium chloride.
 Tetramethylidiaminophenotolox-
 azine.
 2:4-Tetramethylidiaminotoluene.
 4:6-Tetramethylidamino-*m*-xylene.
 Tetramethyl-*m*-phenylenediamine.
 2:2:5:5-Tetramethylpyrrolidine,
 3-amino-.
 Tetraphenylhydrazodicarbonamid-
 ine.
 Thujamenthylamine.
 Toluidines.
 ρ -Tolyldicarbylamine.
 Tolylenediamines.
 6-Tolylhydroxylamine.
 ρ -Tolyl- α -naphthylamine.
 3-*p*-Tolylpyridazine, amino-.
 Tribenzylamine.
 1:2:3-Trihydroxybenzylideneaniline.
 3:7:10-Trimethylacridinium salts, 2:8-
 diamino-.
 5-(or 3)-Trimethylaminophenylpyr-
 azole.
 Trimethylenemethane, amino-.
 Trimethylenetriethyltriamine.
 2:2:4-Trimethylhexahydrobenzylanil-
 ine.
 Triphenylmethylamine.
 Triphenylmethylamylamine.
 Triphenylmethyllethylamine.
 Triphenylmethylpropylamine.
 β -Undecylamine.
 Uracil, 4:5-diamino-.
 Vinylamine.
m-Xylene, diamino-.
 Xylenes, amino-.

Amino-acids from the hydrolysis of
 muscle (ÉTARD), A., i, 699.
 from plants (SCHULZE and WINTER-
 STEIN), A., i, 595.
 formation of (FISCHER, LEVENE, and
 ADERS), A., i, 512.

- Amino-acids**, discrimination between basic and acidic functions in solutions of, by means of formaldehyde (SCHIFF), A., i, 85.
 action of, on phosphotungstic acid (SCHULZE and WINTERSTEIN), A., i, 137.
 as food material for moulds (EMMERLING), A., ii, 521.
 racemic. See under Racemic.
- Amino-acids** of the $C_nH_{2n+1}O_2N$ series, preparation of (KUTSCHER), A., i, 594.
- Amino-alcohols** (TORDORI; STÉNON), A., i, 265.
 polyhydric, action of carbon disulphide on (MAQUENNE and ROUX), A., i, 694.
- Amino-oime-oxalic acid** and its ethyl ester (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1575.
- Amino-oximes**, reactions of (SCHIFF), A., i, 429.
- Aminosulphonic acids**, aromatic, iododerivatives of (KALLE & Co.), A., i, 716.
- Ammonia** in mist, hoar frost, snow and rain (CASALI), A., ii, 423.
 synthesis of, by electricity (DE HEMPTINNE), A., ii, 450.
 preparation of, from atmospheric nitrogen (HOYERMANN), A., i, 355.
 physical properties of aqueous solutions of (GOLDSCHMIDT), A., ii, 15.
 latent heat of vaporisation of (DE FORCRAND), A., ii, 379.
 gaseous, heat of solidification of (DE FORCRAND), A., ii, 379.
 liquid, latent heat of solidification of (DE FORCRAND and MASSOL), A., ii, 379.
 liquid and solid, heat of solution of (MASSOL), A., ii, 378.
 solid, latent heat of fusion of (MASSOL), A., ii, 378.
 influence of salts and other substances on the vapour pressure of aqueous solutions of (PERMAN), T., 480; P., 1901, 261.
 solubility of, in salt solutions, as measured by its partial pressure (ABEGG and RIESENFELD), A., ii, 309.
 action of, on benzyl chloride (DHOMMÉE), A., i, 24.
 action of, on iron, and estimation of impurities in solutions of (PENNOCK and MORTON), A., ii, 426.
 action of, on lithium antimonide (LEBEAU), A., ii, 257.
 in the blood and organs of the dog (HORODYNSKI, SALASKIN, and ZALESKI), A., ii, 516.
- Ammonia** in the blood of geese (KOWALEWSKI and SALASKIN), A., ii, 619.
 excretion of, in human urine (CAMELER), A., ii, 416.
 estimation of, in waters (THOMAS and HALL; EMMERLING), A., ii, 535.
 albuminoid and proteid, estimation of, in water (WINKLER), A., ii, 630.
- Ammonio-cadmium thiocyanates** (GROSSMANN), A., ii, 663.
- Ammonio-chromium salts**. See under Chromium.
- Ammonio-cobalt salts**. See under Cobalt.
- Ammonio-copper compounds**. See under Copper.
- Ammonium**, non-existence of, at -80° (MOISSAN), A., ii, 72.
 as direct source of nitrogen for plants (KOSSOWITSCH), A., ii, 684.
- Ammonium amalgam** (MOISSAN), A., ii, 71.
- Ammonium compounds**, constitution of (WERNER), A., ii, 554.
- Ammonium salts**, thermochemical action of ammoniacal cupric oxide on (BOUZAT), A., ii, 550.
 See also Agricultural Chemistry.
- Ammonium** mercuric bromide, chloride, and chlorobromide (RAY), T., 648; P., 1902, 85.
 carbonate, action of, on arsenic sulphides (VANINO and GRIEBEL), A., ii, 48.
 chloride and iodide, electrolysis of, in solution in liquefied ammonia (MOISSAN), A., ii, 71.
 dissociation of, on heating: lecture experiment (VITALI), A., ii, 129.
 action of, on minerals (CLARKE and STEIGER), A., ii, 269.
 influence of, on the vapour pressure of aqueous ammonia solution (PERMAN), T., 485; P., 1901, 261.
 tin chloride (*pink salt*), technical estimation of tin in solutions of (GEISEL), A., ii, 534.
 nickel chromate (BRIGGS), P., 1902, 255.
 haloids, crystallography of (SLAVÍK), A., ii, 561.
 nitrate, preparation of nitrogen from (MAI), A., ii, 69.
 nitrite, velocity of decomposition of (ARNDT), A., ii, 64.
 iridium nitrite (LEIDIÉ) A., ii, 567.
 phosphate, double, in analysis (AUSTIN), A., ii, 697.
 phosphates, action of, on barium chloride and on magnesium chloride (BERTHELOT), A., ii, 258.

- Ammonium phosphates**, with cadmium, cobalt, manganese and zinc, estimation of, volumetrically (DAKIN), A., ii, 628.
 calcium phosphate (LASNE), A., ii, 320.
 rubidium phosphate (V. BERG), A., ii, 136.
 thallium sulphate (PICCINI and FORTINI), A., ii, 607.
 uranous sulphate (KOHL SCHÜTTER), A., i, 12.
 vanadous sulphate (PICCINI and MARINO), A., ii, 663.
 vanadyl sulphates and sulphites (KOPPEL and BEHRENDT), A., ii, 85.
 persulphate, action of silver salts on solutions of (MARSHALL and INGLIS), A., ii, 561.
 sulphide, cause of the brown coloration of, in presence of a nickel salt (ANTONY and MAGRI), A., ii, 24.
 amidosulphinate (GOLDBERG and ZIMMERMANN), A., i, 738.
 amidosulphite, preparation and decomposition of (DIVERS and OGAWA), T., 504; P., 1902, 71.
 tungstates (TAYLOR), A., ii, 661.
 vanadicophosphotungstate (SMITH and EXNER), A., ii, 506.
 vanadate, precipitation of, by ammonium chloride (GOOCH and GILBERT; ROSENHEIM), A., ii, 700.
- Ammonium organic compounds** :—
Ammonium bases, aromatic quaternary, formation of (SCHLIOM), A., i, 444.
 ψ -Ammonium bases and their derivatives (HANTZSCH and HORN), A., i, 311.
Ammonium compounds (DECKER), A., i, 691; (DECKER, HOCK, and DJIWONSKY), A., i, 830.
 quaternary, isomerism of (HANTZSCH and HORN), A., i, 277.
 dissociation of (WEDEKIND and OBERHEIDE), A., i, 277; (WEDEKIND and OECHSLER), A., i, 392.
 iodides, organic, physiological action of (JACOBI), A., ii, 620.
 thiocyanate and thiocarbamide, "dynamic isomerism" of (REYNOLDS and WERNER), P., 1902, 207.
 action of benzoic chloride on (BENSON and HILLYER), A., i, 27.
 action of picryl chloride on, in alcoholic solution (CROCKER), T., 436; P., 1902, 57.
 cadmium thiocyanate (GROSSMANN), A., i, 663.
- Ammonium-calcium** and **Ammonium-lithium**, decomposition of, by ammonium chloride, and action of hydrogen sulphide on (MOISSAN), A., ii, 72.
- Amphibole** in soda-syenite from Miask (JOHNSEN), A., ii, 31.
- Amygdalin**, catalytic racemisation of (WALKER), P., 1902, 198.
- Amyl alcohol**, fermentation (BEMONT), A., i, 131.
- Amyl alcohol** (*diethylcarbinol*), β -amino-, and its dibenzoyl derivative and piuronate (TORDOIR), A., i, 265.
- Amyl alcohol** (*methylpropylcarbinol*), γ -amino- (STIÉNON), A., i, 265.
- isoAmyl alcohol*, properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTÉY), T., 749; P., 1902, 105.
 properties of mixtures of, with water (YOUNG and FORTÉY), T., 733; P., 1902, 105.
- Amyl alcohols**, separation of, from fusel oil (MARCKWALD), A., i, 418.
- Amyl nitrite**, influence of, on the amount of carbon dioxide in arterial blood (SAIKI and WAKAYAMA), A., ii, 161.
 influence of, on the synthesis of phenolsulphuric acid in the organism (KATSUYAMA), A., ii, 161.
- isoAmylacetone*, nitroso- (BOUVEAULT and LOCQUIN), A., i, 705.
- m-isoAmylaminobenzoic acid* and its hydrochloride and nitroso-derivative (BAUER and EINHORN), A., i, 224.
- m-isoAmylaminohexahydrobenzoic acid* and its ethyl ester, and nitroso-derivative (BAUER and EINHORN), A., i, 224.
- isoAmylbenzene*, *p*-iodo-, *p*-iodoso-, and *p*-idoxy-derivatives of, and their salts (WILLGERODT and DAMMANN), A., i, 19.
- sec.Amylbenzene** (KLAGES), A., i, 668.
- Amylene**, action of aluminium chloride on (ASCHAN), A., i, 749.
- Amylene** (β -methyl- β -butylene) $\beta\gamma$ -nitroso, polymerism of (SCHMIDT), A., i, 582.
 $\beta\gamma$ -nitrosoite, and its benzoyl and phenylcarbamide derivatives (SCHMIDT), A., i, 582.
- Amylene** (*trimethyleneethylene*), $\beta\gamma$ -nitrosoite, desmotropism of (HANTZSCH), A., i, 734.
- Amyl- ψ -nitrole**, constitution of (PILOTY and STOCK), A., i, 735.
- γ -Amylodextrin** from the action of barley diastase on starch (BAKER), T., 1179; P., 1902, 134.

- p-isoAmylphenyl iodide** containing polyvalent iodine, derivates of (WILLGERODT and DAMMANN), A., i, 19.
- Amylphtalimide**, ϵ -bromo- (MANASSE), A., i, 351.
- 3-Amylpyrazolone** (BONGERT), A., i, 74.
- β -Arylsulphone*iso*butyl methyl ketone** (POSNER), A., i, 297.
- β -Arylsulphone- β -methyl- β -phenylethyl and β -Arylsulphone- β -phenylethyl phenyl ketones** (POSNER), A., i, 297.
- Anæropolarimetry.** See Photochemistry.
- Anæsthetics** (GOLDSCHMIDT), A., i, 785.
- Anæthole** and its nitrosochloride (KLAGES), A., i, 609.
- Analcite** from Liassic clay at Lehre (FROMME), A., ii, 511.
- Analysis**, double ammonium phosphates in (AUSTIN), A., ii, 697.
- use of persulphates in (DAKIN), A., ii, 533.
- capillary (GOPPELSROEDER), A., ii, 424.
- chemical, filter paper a source of error in (MANSIER), A., ii, 690.
- organic, new method of (THIBAULT and VOURNASOS), A., ii, 696.
- qualitative, application of hydroxylamine and hydrazine salts in (KNOEVENAGEL and EBLER), A., ii, 697.
- quantitative, use of centrifugal apparatus for (STEINITZER), A., ii, 351.
- fractional distillation as a method of (YOUNG and FORTEY), T., 752; P., 1902, 106.
- spectrum. See under Photochemistry.
- volumetric, the literature on the preparation of standard solutions for (VANINO and SEITTER), A., ii, 529.
- titration with phenolphthalein in alcoholic solution (HIRSCH), A., ii, 690.
- relative stability of sodium oxalate and potassium tetraoxalate (DUPRÉ and v. KUFFFER), A., ii, 424.
- See also Indicators.
- Analytical chemistry**, relations of absorption to (SCHALLER), A., ii, 226.
- Anapaita** from the Scheljesni Bog mine on the Black Sea (SACHS), A., ii, 268.
- Andalusite** from the Rhätian Alps (GRAMANN), A., ii, 31.
- Anethole**, oxidation of (BOUGAULT), A., i, 452.
- oxidation of, with mercuric acetate (BALBIANO, PAOLINI, and NARDACCI), A., i, 808.
- dibromide** and bromo-, action of methyl and ethyl alcohols on (POND, ERB, and FORD), A., i, 449.
- Anhydramides**, formation of (ARMSTRONG and LOWRY), T., 1441; P., 1901, 182.
- Anhydride**, $C_8H_8O_5$, constitution of (KÜSTER), A., i, 845.
- Anhydrides** of α -amino-fatty acids (HOYER), A., i, 352.
- acid, preparation of (CHEMISCHE FABRIK VON HEYDEN), A., i, 93.
- in chloroform solution, action of aluminium chloride on (DESFOINTAINES), A., i, 258.
- action of, on trioxymethylene (DESCUDÉ), A., i, 738.
- Anhydrate**, formation of (VAN'T HOFF, DONNAN, ARMSTRONG, HINRICHSEN, and WEIGERT), A., ii, 74; (VAN'T HOFF and WEIGERT), A., ii, 137.
- Anhydroacetyl-9-amino-10-hydroxy-phenanthrene** (SCHMIDT), A., i, 757.
- Anhydrobenzoyl-9-hydroxy-10-amino-phenanthrene** (PSCHORR and SCHRÖTER), A., i, 672.
- Anhydrobisdketohydrindene**, derivatives and ethers of (HOYER), A., i, 42.
- Anhydrobispypyridanediione** (BITTNER), A., i, 494.
- Anhydrobrazilic acid** and its oxime (PERKIN), T., 230; P., 1900, 106; 1901, 258.
- Anhydroformaldehydeaniline.** See Methyleneaniline.
- Anhydrolupinine** and its additive salts and methiodide (WILLSTÄTTER and FOURNEAU), A., i, 558.
- Anhydroprotokosin** (BOEHM and LOBECK), A., i, 167.
- Anhydrotetramethylhæmatoxylene** and its acetyl derivative (PERKIN), T., 1062.
- Anhydrottrimethylbrazilone** and its acetyl derivative (PERKIN), T., 1017; (GILBODY and PERKIN), T., 1043.
- Amides**, hydrolysis of, by ferment (GONNERMANN), A., i, 512.
- Aniline**, action of phosphorus pentachloride on (GILPIN), A., i, 700.
- Aniline**, *s*-trihalogen, nitration of (ORTON), T., 490, 806; P., 1902, 58, 111.
- 4-chloro-2:6-dibromo-3-nitro-* (ORTON), T., 504; P., 1902, 74.
- s-chlorobromonitro-derivatives of*, and their derivatives (ORTON), T., 495; P., 1902, 59.
- o-chloro-p-nitro*, and its salts and acetyl, benzoyl, and azo-derivatives (COHN), A., i, 441.
- iodo-derivatives of* (WILLGERODT and ARNOLD), A., i, 16.
- 3:6-diido- and 4-iodo-o-nitro-* (BRENNANS), A., i, 673.

- Aniline**, *p*-nitro-, action of formaldehyde on (MEYER and STILICH), A., i, 319.
3,5-dinitro- (COHEN and DAKIN), T., 29; P., 1901, 214.
9-Anilino-3:5-diaminophenazothionium chloride, and its 3:5-diacyl derivative (KEHRMANN and SCHILD), A., i, 570.
ε-Anilinoamylphthalimide (MANASSE), A., i, 352.
Anilinoazocetoacetic acid, ethyl ester, acetyl derivative of (BÜLOW and HAILER), A., i, 325.
Anilinoazobenzoylacetic acid, ethyl ester, acetyl derivative of, and amide (BÜLOW and HAILER), A., i, 326.
Anilinobenzeneazo-cyanide and -phenylsulphone (HANTZSCH), A., i, 324.
Anilinobenzeneazosulphonic acid, salts (HANTZSCH), A., i, 324.
Anilinocitraconanil and its derivatives (FICHTER and PREISWERK), A., i, 443.
β-Anilinocrotonic acid, methyl ester (LAPWORTH and HANN), T., 1506; P., 1902, 145.
β-Anilino-β-cyanobutyric acid, ethyl ester, and its products of transformation (SCHROETER and KIRNBERGER), A., i, 530.
3-Anilino-1:2-diketopentamethylene-2-anil hydrochloride (DIECKMANN), A., i, 787.
6-Anilino-2:4-dimethylpyrimidine (SCHMIDT), A., i, 499.
2-Anilino-4:6-dimethylpyrimidine and its salts and nitroso-derivative (ANGERSTEIN), A., i, 124.
Anilinoethylenetricarboxylic acid, methyl ester (CONRAD and REINBACH), A., i, 211.
2-Anilinohydrocarbostyryl, and its **-2-carboxylic acid**, methyl ester (CONRAD and REINBACH), A., i, 211.
Anilinomonalic acid, esters, and their salts, amides, *p*-bromo- and alkyl derivatives (CONRAD and REINBACH), A., i, 210.
Anilinomethylenemalonic acid, *p*-chloro-, ethyl ester, *p*-chloroanilide of (DAINS), A., i, 603.
α-Anilinomethylsuccinanils, isomeric (FICHTER and PREISWERK), A., i, 443.
Anilino-β,β₂-naphthaphenazine (HINSBERG), A., i, 239.
11-Anilino-β- and 3-Anilino-α-naphthaphenazothionium anhydrides (KEHRMANN, GRESSLY, and MISSLIN), A., i, 568.
8-Anilino-1-nitroanthraquinone (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 382.
- 2-Anilino-3:5-dinitrobenzoic acid**, and its aniline compound and potassium salt (PURGOTTI and CONTARDI), A., i, 778.
3-Anilinophenazothionium salts and *p*-acetyl derivative (AKTIENGESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 495.
chloride and its anhydro-base (KEHRMANN and VESELY), A., i, 568.
3-Anilinophenazoxonium, chloride and nitrate (KEHRMANN and STAMPA), A., i, 566.
Anilinophenylmethylenecamphoranol and its acetyl derivative (FORSTER), P., 1902, 237.
6-Anilino-3-phenyl-5-methylpyridazine, and its chromate (OPPENHEIM), A., i, 187.
3-Anilino-4-phenyl-5-triazolone (BUSCH and ULMER), A., i, 574.
Anilino-phosphorylchloride and -phosphamic acid (CAVEN), T., 1366; P., 1901, 27.
α-Anilinopyrotartaric acid nitrile, ethyl ester. See **β-Anilino-β-cyanobutyric acid**, ethyl ester.
Anilino-p-toluidino-phosphoryl chloride and **-phosphoric acid**, and its ethyl ester (CAVEN), T., 1369; P., 1901, 26.
β-Anilinotricarballylic acid nitrile, diethyl ester, and its products of transformation (SCHROETER and KIRNBERGER), A., i, 531.
Animal fibres, dyeing of, by acid colouring matters (SISLEV), A., i, 815
tissues, electrical conductivity of (GALEOTTI), A., ii, 675.
Animals, muscle-plasma in different classes of (PRZIBRAM), A., ii, 339.
tyrosinase in (v. FÜRTH and SCHNEIDER), A., ii, 36.
aquatic, molecular concentration of the blood and tissues of (FREDERICQ), A., ii, 94.
lower, gluco-proteids of (v. FÜRTH), A., ii, 35.
lipase in the (SELLIER), A., ii, 217.
marine, coagulation of blood in (BOTTAZZI), A., ii, 410.
warm-blooded, influence of temperature on (FALLOISE), A., ii, 149.
Anisaldehyde (*o*-methoxybenzaldehyde), condensation of, with benzyl methyl ketone (GOLDSCHMIEDT and KRZCZMAŘ), A., i, 41.
condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 820.
action of, on 2-methyl-5-ethylpyridine, 2-picoline, and quinaldine (BIALON), A., i, 828.

- 4-Anisidine**, 2:6-dibromo-, and its acetyl and benzoyl derivatives (ROBERTSON), T., 1479; P., 1902, 190.
- 2:3-dinitro-, preparation, and diazotisation of (MELDOLA and EYRE), T., 988; P., 1902, 160.
- p*-**Anisidinomethylenemalonic acid**, *p*-aniside of (DAINS), A., i, 603.
- 5-Anisidino-2-isopropylbenzoquinone**, 3:6-dibromo- (BÖTER), A., i, 473.
- Anisole**, critical constant and molecular complexity of (GUYE and MALLET), A., ii, 243, 303.
- Anisole**, diamino-, mono- and dichloronitro- and dinitro- (MELDOLA and EYRE), T., 992; P., 1902, 160.
- o*- and *p*-nitroso- (V. BAEVER and KNORR), A., i, 766.
- Anisoleantidiazohydrate** and -nitrosamine, 2:6-dibromo- (HANTZSCH and POHL), A., i, 843.
- Anisolediazo-iodide** (EULER and HANTZSCH), A., i, 191.
- Anisolepropionic acid** (POPPENBERG), A., i, 60.
- Anisylarsenic compounds** (MICHAELIS and ULRICH), A., i, 413.
- Anisylideneacetone** (V. BAEVER and VILLIGER), A., i, 380.
- a*-**Anisylidene-Δ^β angelicalactone** (THIELE, TISCHBEIN, and LOSSOW), A., i, 155.
- Anisylideneacamphor**, crystallographic properties of (MINGUIN), A., i, 632.
- a*-**Anisylideneacrylic acid** (THIELE, TISCHBEIN, and LOSSOW), A., i, 156.
- Anisylidenemalic acid** (THIELE, TISCHBEIN, and LOSSOW), A., i, 156.
- Anisylidenequinaldine** and its salts (BIALON), A., i, 828.
- o*-**Anisylmethylsulphone** (TRÖGER and BUDDE), A., i, 776.
- 3-Anisylpyridazine**, bromo-, and its 6-chloro-, 6-iodo-, 6-methoxy, and 6-ethoxy derivatives (POPPENBERG), A., i, 61.
- 3-Anisylpyridazinone** and its 1-phenyl derivative (POPPENBERG), A., i, 60.
- 3-Anisylpyridazone**, bromo-, and its 1-methyl and 1-ethyl derivatives (POPPENBERG), A., i, 60.
- 4-p*-**Anisylsemithiocarbazide** (BUSCH and ULMER), A., i, 575.
- o*-**Anisylsulphoneacetic acid** and its ethyl ester (TRÖGER and BUDDE), A., i, 776.
- o*-**Anisylsulphone-ethyl alcohol** (TRÖGER and BUDDE), A., i, 776.
- Ankerite** from Montana (WEED), A., ii, 330.
- from Saint Pierre, Allevard (ARSANDAUX), A., ii, 329.
- Annelids**, artificial parthenogenesis in (FISCHER), A., ii, 621.
- Annual General Meeting**, T., 609; P., 1902, 77.
- Anodes**. See Electrochemistry.
- Anorthite** from Phippsburg, Maine (HILLEBRAND), A., ii, 463.
- from S. Martino, Viterbo (ZAMBONINI), A., ii, 213.
- Anthracene**, solubility of, in benzene (FINDLAY), T., 1220; P., 1902, 172.
- detection of the principal impurities of (BEHRENS), A., ii, 631.
- Anthrachrysone**, preparation of (HOHENEMSER), A., i, 629.
- Anthragallop**, nitro-compounds and dimethyl ether of (BAMBERGER and BÖCK), A., i, 30.
- Anthragalloamine** (BAMBERGER and BÖCK), A., i, 30.
- Anthragallosulphonic acid**, and its sodium salt (FARBENFABRIKEN VORM. F. BAEVER & CO.), A., i, 383.
- Anthranil** from *o*-aziminobenzaldehyde (BAMBERGER and DEMUTH), A., i, 127.
- reactions of (BUHLMANN and EINHORN), A., i, 94; (BAMBERGER and DEMUTH), A., i, 95.
- Anthranilic acid** (*o*-aminobenzoic acid), preparation of (KALLE & CO.; BASLER CHEMISCHE FABRIK), A., i, 718.
- action of formaldehyde on (GOLDSCHMIDT), A., i, 371; (HELLER and FIESSELMANN), A., i, 779.
- Anthranilic acid**, esters, action of formaldehyde on (GOLDSCHMIDT), A., i, 716.
- methyl ester, action of formaldehyde on (MEHNER), A., i, 676.
- detection and estimation of (ERDMANN), A., ii, 292.
- estimation of, in ethereal oils (HESSE and ZIETSCHEL), A., ii, 538.
- Anthranilic acid**, 4- and 6-chloro-, action of aromatic phenols and amines on the diazo-compounds of (COHN), A., i, 63.
- 4-, 5-, and 6-nitro-, and their esters, acetyl derivatives, sodium salts and hydrochlorides (SEIDEL), A., i, 159; (SEIDEL and BITTNER), A., i, 719.
- Anthranilic-acetonitrile acid**, esters (VORLÄNDER, MUMME, and WANGERIN), A., i, 454.
- Anthranilidoacetonitrile**. See Methylanthranilic acid, ω -cyanato.
- Anthranol**, 9-nitroso- (FARBENFABRIKEN VORM. F. BAEVER & CO.), A., i, 448.

- Anthraquinone**, amino-derivatives and their acetyl compounds (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 476.
diamino-derivatives, condensation of, with formaldehyde (BADISCHE ANILIN- & SODA-FABRIK), A., i, 119.
polychlorodiamino- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 382.
nitro-derivatives, conversion of, into bromoamino-derivatives (BADISCHE ANILIN- & SODA-FABRIK), A., i, 475.
 conversion of, into the corresponding hydroxy-compounds (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 383.
 1:4-nitroamino-, and its acetyl derivative (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 382.
*dinitro*diamino-derivatives and their acetyl compounds (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 476.
- Anthraquinonedisulphonic acid**, *di*-bromo-1:5-diamino-, and dichloro-1:5-diamino-, sodium salts (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 476.
- Anthraquinoneoxime**, and its dialkyl-acetals (MEISENHEIMER), A., i, 795.
- Anthraquinonesulphonic acid**, *dibromo*-*β*-amino- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 476.
- Anthraquinone-2-sulphonic acid**, 1-nitroso- (WACKER), A., i, 298.
- Anthrarufin**, reduction of, with hydrogen iodide (PLEUS), A., i, 773.
 ethyl ethers, and the acetate of the mono-ether (PLEUS), A., i, 774.
- Anthrarufin**, *p*-dibromo- and *p*-dichloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 477.
- Anthronedimethylacetal**, bromonitro- (MEISENHEIMER), A., i, 796.
- Anti-hæmolsins**, natural (BESREDKA), A., ii, 94.
- Antimony**, electrolytic preparation of (v. HEMMELMAYR), A., ii, 459.
 action of, on organic acids (MORITZ and SCHNEIDER), A., i, 703.
 action of lithium and of lithium-ammonium on (LEBEAU), A., ii, 256.
- Antimony alloys** with copper, iron, lead, and tin, analysis of (PONTIO), A., ii, 478.
 with tellurium (FAY and ASHLEY), A., ii, 266.
- Antimony tribromide**, compound of, with pyridine (HAYES), A., i, 492.
- Antimony** *tri-* and *penta*-bromides and *penta*-chloride, compounds of, with dimethylaniline, pyridine, and with quinoline (ROSENHEIM and STELLMANN), A., i, 68.
pentachloride, compounds of, with organic acids (ROSENHEIM and STELLMANN), A., i, 68; (ROSENHEIM and LOEWENSTAMM), A., i, 358.
 compounds of, with organic oxygen derivatives (ROSENHEIM and STELLMANN), A., i, 68.
hydride (*stibine*), preparation of (OLSZEWSKI), A., ii, 27; (STOCK and DOHT), A., ii, 507.
- oxides**, action of organic acids on (JORDIS), A., i, 740.
- Antimonious oxide**, influence of, on the rotation of lactic acid and its potassium salt (HENDERSON and PRENTICE), T., 660; P., 1902, 88.
- Antimony**, detection, estimation, and separation of:—
 detection and estimation of traces of, in presence of large quantities of arsenic (DENIGES), A., ii, 52; (BARTHE), A., ii, 290.
 in hydrochloric acid solution, estimation of, volumetrically with permanganate (PETRICCIOLI and REUTER), A., ii, 177.
 arsenic, and tin, separation of (WALKER), P., 1902, 246; (LANG, CARSON, and MACKINTOSH), A., ii, 530; (LANG and CARSON), A., ii, 700.
 separation of, from copper, lead, and tin (RÖSSING), A., ii, 230.
- Antipeptones**, α - and β - (SIEGFRIED), A., i, 654.
- Antipyrine**, constitution of (MICHAELIS), A., i, 315.
 compound of, with ferric chloride (SCHUYTEN), A., i, 188.
 salts (REYCHLER), A., i, 646.
 ferrocyanide, ferricyanide, and nitro-prusside (SCHUYTEN), A., i, 187.
- Antipyrine**, thio- and seleno-, and their derivatives (MICHAELIS), A., i, 315.
 thio-. See also 1-Phenyl-2:3-dimethyl-pyrazolone, 5-thio-.
- Antipyrylcarbamide** in urine after the administration of pyramidone (JAFFÉ), A., i, 840.
- Antirennet** and rennet (KORSCHUN), A., ii, 673.
- Antiseptic** function of the hydrogen ions of dilute acids (BIAL), A., ii, 447.
 solutions containing mercuric chloride, iodide, or cyanide, estimation of mercury in (MEILLÈRE), A., ii, 49.

- Antitoxic action of ions, influence of valency on the (LOEB), A., ii, 162, 219.**
effect of ions (NEILSON), A., ii, 621.
- Antitoxin, non-absorption of, by the stomach and rectum (HEWLETT), A., ii, 465.**
- Antitoxins, nature and properties of mixtures of, with their toxins (DANYSZ), A., ii, 575.**
and toxins, action of, *in vitro* and *in corpore* (BASHFORD), A., ii, 277.
- Antiurease (MOLL), A., ii, 621.**
- Apatite from Minot, Maine (WOLFF and PALACHE), A., ii, 330.**
- Aphthalite from Wilhelmshall, Magdeburg-Halberstadt (KUBIERSCHKY), A., ii, 406.**
- Apigenin, colouring properties of (PERKIN), T., 1175; P., 1902, 180.**
isoApiole, oxidation of (BOUGAULT), A., i, 453.
dibromide, bromo-, action of methyl and ethyl alcohols on (POND, ERB, and FORD), A., i, 450.
- Apionic acid and its salts and phenylhydrazide (VONGERICHTEN), A., i, 425.**
- Apiose, constitution of (VONGERICHTEN), A., i, 425.**
- Apophyllenic acid, formation of, from α -methyl cinchomeronate (KIRPAL; KAASS), A., i, 564.**
- Apophyllite from Schiket (Colonia Eritrea) (D'ACHIARDI), A., ii, 408.**
- Apparatus, new (PATTERSON), A., ii, 389; (LANDSIEDL), A., ii, 390; (WILLIAMS), A., ii, 391.**
- Apples and their products, analysis of (BROWNE), A., ii, 371.**
 See also Agricultural Chemistry.
- Apricots, colouring matter and sugars of (DESMOULIERE), A., ii, 685.**
- Aquamarine from the Ilmen Mountains (SUSCHTSCHINSKY), A., ii, 30.**
- Arabian and xylan, simultaneous occurrence of, in plants (BROWNE and TOLLENS), A., ii, 420.**
behaviour of, with Fehling's solution (SALKOWSKI), A., i, 593.
- d-Arabinoketosephenylmethylosazone (NEUBERG), A., i, 264.**
- Arabinose, derivatives of (CHAVANNE), A., i, 346.**
phenylhydrazone (TANRET), A., i, 426.
estimation of, in urine (NEUBERG and WOHLGEMUTH), A., i, 347.
- d-Arabinose, preparation of (NEUBERG and WOHLGEMUTH), A., i, 346.**
- Arabinoses, d-, l- and r-, fate of, in the organism (NEUBERG and WOHLGEMUTH), A., ii, 336.**
- Arabitol pentanitrate (VIGNON and GERIN), A., i, 9.**
- d-Arabonic acid, preparation of (NEUBERG and WOHLGEMUTH), A., i, 346.**
- Arachic oil, estimation of (TORTELLI and RUGGERI), A., ii, 539.**
occurrence and detection of sesamé oil in commercial (SOLTSIEN), A., ii, 114.
- Arachnolysin (SACHS), A., ii, 343.**
- Arcus senilis (PARSONS), A., ii, 418.**
- Arecaidine and Arecoline, constitution of (MEYER), A., i, 390.**
- Arenicola larvæ, effect of various solutions on ciliary and muscular movements in (LILLIE), A., ii, 340.**
- Argemone mexicana, alkaloids of (SCHLITTERBECK), A., ii, 101.**
- Arginine (SCHULZE and WINTERSTEIN), A., i, 231.**
amount of, in vegetable proteids (SCHULZE and WINTERSTEIN), A., i, 193.
- Argon, atomic weight and classification of (WILDE), A., ii, 393.**
is it an elementary substance? (MARTIN), P., 1901, 259.
liquid, variation with temperature of the surface energy and density of (BALY and DONNAN), T., 907; P., 1902, 115.
- Aromadendral and its oxime and Aromadendric acid from eucalyptus oils (SMITH), A., i, 103.**
- Aromadendrene (SMITH), A., i, 229.**
- Aromatic compounds, constitution of (THIELE), A., i, 151.**
bromination and nitration of (BLANKSMA), A., i, 600.
- Arhenal. See Methylarsenic acid, disodium salt.**
- Arrow poisons (HARTWICH and GEIGER), A., i, 114.**
 from German East Africa (BRIEGER and DIESSELHORST), A., i, 634.
 Ipoh, and some plants used to prepare them (HARTWICH and GEIGER), A., i, 114.
- Arrowroot, production of (LEUSCHER), A., ii, 283.**
- Arsenic, atomic weight of (EBAUGH), A., ii, 499.**
 in the organism (CERNÝ), A., ii, 274.
 presence of, in normal animal organs (GAUTIER; BERTRAND), A., ii, 517.
 compounds of, in the liver (SLOWROFF), A., ii, 34; (v. ZEYNEK), A., ii, 161.
 origin of, in beers (PETERMANN), A., ii, 471.
- Arsenic tribromide as a solvent (WALDEN), A., ii, 247.**
 trihydride (VANINO), A., ii, 655.

Arsenic:—

Arsenides of the alkaline earth metals (LEBEAU), A., ii, 395.

Arsenic oxide and its hydrates (AUGER), A., ii, 393.

Arsenious oxide, influence of, on the rotation of lactic acid and its potassium salt (HENDERSON and PRENTICE), T., 660; P., 1902, 88.

Arsenic acid, action of boiling hydrochloric acid on (HEHNER), A., ii, 695. action of hydrogen sulphide on (LE ROY and McCAY), A., ii, 135, 655. action of, on pinene (GENVRESSE), A., i, 300.

compounds of, with aromatic ketones (KLAGES), A., i, 624.

Thio-oxyarsenic acids (LE ROY and McCAY), A., ii, 135, 655.

Arsenious selenide, action of hydrogen on (PÉLALON), A., ii, 253.

Arsenic sulphides, action of ammonium carbonate on (VANINO and GRIEBEL), A., ii, 48.

separation of, from antimony and tin sulphides (VANINO and GRIEBEL), A., ii, 48.

Arsenic aromatic compounds (MICHAE LIS), A., i, 411, 515.

Arsenic, detection, estimation and separation of:—

two possible causes of discrepancy in the analysis of (MURPHY), A., ii, 629. the Marsh-Berzelius deposit of (ACKROYD), A., ii, 628.

detection of (ARNOLD and MENTZEL), A., ii, 354.

detection of very small quantities of (BERTRAND ; MÖRNER), A., ii, 694.

detection of, by Gosio's biological method, in presence of selenium and tellurium (MAASSEN), A., ii, 629.

influence of selenium and tellurium on the biological test for (ROSENHEIM), P., 1902, 138.

Reinsch's test for (KENRICK), A., ii, 427.

Selmi's method for the toxicological detection of (GIUDICE), A., ii, 354.

detection and estimation of minute quantities of, in beer, brewing materials, foods, and fuel (REPORT OF JOINT COMMITTEE), A., ii, 288.

detection of traces of, in food (BERTROP), A., ii, 225.

detection of, in glycerol (BOUGAULT), A., ii, 530 ; (BARTHÉ), A., ii, 703.

detection of, in hydrochloric and sulphuric acids (SEYBEL and WIKANDER), A., ii, 289 ; (ARNOLD and MENTZEL), A., ii, 354.

estimation of, in malt liquors (RICHARDSON), A., ii, 628.

Arsenic, estimation and separation of:—

estimation of, colorimetrically (MAI), A., ii, 628.

estimation of, in presence of organic matter (MEILLÈRE), A., ii, 288.

estimation of, and separation of, from antimony (DENIGÈS), A., ii, 52 ; (BARTHÉ), A., ii, 290.

tin, and antimony, separation of (WALKER), P., 1902, 246 ; (LANG, CARSON, and MACKINTOSH), A., ii, 530 ; (LANG and CARSON), A., ii, 700.

Arsenical poisoning, chronic, condition of the blood and marrow in (MUIR), A., ii, 37.

Arsenic mould (*Penicillium brevicompactum*), use of, for the detection of arsenic in presence of selenium and tellurium (MAASSEN), A., ii, 629.

Arsensulfurite (RINNE), A., ii, 611.

Arsine. See Arsenic trihydride.

Artemic acid (HORST), A., i, 387.

Artemisin and its silver salt and methyl ester (FREUND and MAI), A., i, 101. reduction of (BERTOLO), A., i, 814.

Arylamines, action of methylene diiodide on (SENIER and GOODWIN), T., 280 ; P., 1902, 12.

a-Arylaminonaphthalquinones, action of dehydrating agents on (DAMMANN and GATTERMANN), A., i, 795. conversion of, into acridine derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 501.

Arylaminonitroanthraquinones (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 382.

Arylazoacetaldoximes, action of hydrogen chloride on (BAMBERGER and GROB), A., i, 247 ; (BAMBERGER and FREI), A., i, 248.

Arylazoaldoximes (BAMBERGER), A., i, 246 ; (BAMBERGER and GROB), A., i, 247 ; (BAMBERGER and FREI), A., i, 248.

Arylydroxylamines, conversion of, into diarylcaramides (BAMBERGER and DESTRAZ), A., i, 538.

Arylsulphonimides (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 364.

Aryldithiocarbamates, removal of sulphur from (HELLER and BAUER), A., i, 444.

Asarone and Parasarone (THOMS and BECKSTROEM), A., i, 809.

Asarum arifolium, essential oil of (MILLER), A., i, 809.

- Asarum canadense**, constituents of the oil of (POWER and LEES), T., 59; P., 1901, 210.
- Asbestos**, composition of (CLAYTON), P., 1901, 203.
- Ascaris**, formation of glycogen in (WEINLAND and RITTER), A., ii, 677.
- Ascaris lumbricoides**, action of extracts of (WEINLAND), A., ii, 412.
- changes in the carbohydrates in (WEINLAND), A., ii, 155.
- Ascites**, chylous and chyliform (HUTCHISON), A., ii, 466.
- Ascitic fluid**, urobilin in (STICH), A., ii, 418.
- Asparagine**, formation of, in the metabolism of shoots (SUZUKI), A., ii, 684.
- Asparagus seeds**, composition of and of its oil (PETERS), A., ii, 281.
- Aspergillus niger**, influence of thiocyanic acid on the growth of (FERNBACH), A., ii, 577.
- Aspidinol** and its bromo- and dibenzoyl derivatives (BOEHM), A., i, 37.
- Aspidium Felix-mas.**, constituents of extracts of (KRAFT), A., i, 814.
- Association**. See Affinity.
- Astracanite**. See Blödite.
- Atmid-keratin** and -keratose (BAUER), A., i, 846.
- Atmospheric air**, ionisation of (BARUS), A., ii, 59.
- liquid (D'ARSONVAL), A., ii, 650.
- hydrogen in (RAYLEIGH), A., ii, 391.
- organic vapour in (HENRIET), A., ii, 714.
- influence of carbon dioxide in, on the form and internal structure of plants (FARMER and CHANDLER), A., ii, 683.
- influence of varying amounts of carbon dioxide in, on the photosynthetic process of leaves and on the mode of growth of plants (BROWN and ESCOMBE), A., ii, 682.
- of factories and workshops (HALDANE), A., ii, 671.
- of the sea and of maritime pine forests (DUPHIN), A., ii, 204.
- estimation of carbon dioxide in (LETTES and BLAKE), A., ii, 226.
- Atomic groupings**, tautomeric (LAAR), A., i, 1.
- hypothesis, new (RICHARDS), A., ii, 444.
- volume. See Volume.
- Atomic weight** of argon, krypton, neon and xenon (WILDE), A., ii, 393.
- of arsenic (EBAUGH), A., ii, 499.
- of calcium (HINRICHSEN), A., ii, 137, 501; (RICHARDS), A., ii, 394.
- Atomic weight** of the rare earths, error of the "sulphate method" for the determination of (BRAUNER and PAVLÍČEK), T., 1248; P., 1901, 63.
- of iodine (LADENBURG), A., ii, 498.
- of lanthanum (BRAUNER and PAVLÍČEK), T., 1243; P., 1901, 63; (JONES), A., ii, 563.
- of radium (CURIE), A., ii, 562.
- of selenium (MEYER), A., ii, 392, 605.
- of tellurium (SCOTT), P., 1902, 112; (KÖTHNER), A., ii, 67; (PELLIND), A., ii, 69; (GUTBIER), A., ii, 254.
- of thorium (BASKERVILLE), A., ii, 85.
- of uranium (RICHARDS and MERIGOLD), A., ii, 506.
- of vanadium (MATIGNON and MONNET), A., ii, 326.
- of ytterbium (CLEVE), A., ii, 659.
- Atomic weight numbers** (BILECKI), A., ii, 449.
- Atomic weights**, tendency of, to approach whole numbers, and Prout's hypothesis (RUDOLPHI), A., ii, 201.
- the standard for (RICHARDS), A., ii, 65.
- ratios of the (MARSHALL), A., ii, 602.
- general numerical connection between (VINCENT), A., ii, 602.
- calculation of (CLARKE), A., ii, 449; (SCHMIDT), A., ii, 497.
- Report of the American Committee on (CLARKE), A., ii, 389.
- third Report of the Committee of the German Chemical Society on (LANDOLT, OSTWALD, and SEUBERT), A., ii, 129.
- Atoms**, physical properties of (SUTHERLAND), A., ii, 300.
- weights of (KELVIN), A., ii, 649.
- Atropine**, synthesis of (LADENBURG), A., i, 390.
- action of, on echinoderm embryos (MATHEWS), A., ii, 96.
- Atroscine** and its salts (HESSE), A., i, 51; (GADAMER), A., i, 173.
- and its hydrates (HESSE), A., i, 817.
- change of, into *i*-scopolamine (KUNZ-KRAUSE), A., i, 174.
- Aucuba japonica**, reserve carbohydrates of the seed of (CHAMPENOIS), A., ii, 166.
- Aucubin** from the seeds of *Aucuba japonica* (BOURQUELOT and HÉRISSEY), A., i, 634.
- Auramine**, constitution of (GRAEBE), A., i, 683.
- Auramine G**, base of, and its salts (GNEHM and WRIGHT), A., i, 295.
- Aurora borealis**, nature and constitution of the spectra of the (STASSANO), A., ii, 437.
- Autolysis** and blood-clotting (CONRADI), A., ii, 35.

Autolysis, formation of bactericidal substances in (CONRADI), A., ii, 35.
of the liver, behaviour of fat during (SIEGERT), A., ii, 34.
acid formation in (MAGNUS-LEVY), A., 517.
in malignant tumours (PETRY), A., ii, 342.

Auto-oxidation. See under Oxidation.

***o*-Aziminobenzaldehyde**, conversion of, into anthranil (BAMBERGER and DEMUTH), A., i, 127.

Azlacones (ERLENMEYER), A., i, 595.

Azoacetamide, imino-, and its salts (SIL-BERRAD), T., 600; P., 1902, 44.

Azoacetic acid, imino-, barium salt (SIL-BERRAD), T., 603; P., 1902, 44.

Azobenzene, certain properties of (FREUNDLER and BÉRANGER), A., i, 405.
p-amino-, acyl derivatives of (WIELEZYŃSKI), A., i, 510.

Azobenzoic acids, new method of preparing (MAIER), A., i, 192.

Azobenzophenones, *m*- and *p*- (POSNER), A., i, 624.

Azo-compounds, amino-, from diazoamino-compounds (CHATTAWAY), P., 1902, 175.
influence of substitution on the formation of (MORGAN), T., 86, 1376; P., 1901, 236; 1902, 185.
aminobenzyl cyanides and iminobenzoyl cyanides from (SACHS and GOLDMANN), A., i, 781.
fatty aromatic (PRAGER), A., i, 64, 578.

Azo-compounds. See preceding entries and also :—

Acetoacetamide, phenylazo-derivative of.
o-Acetoxyazoxybenzene.
p-Acetylchloroaminoazobenzene.
Anilinoazooctoacetic acid.
Anilinoazobenzoylacetic acid.
Anilinobenzeneazocyanide.
Anilinobenzeneazophenylsulphone.
Anilinobenzeneazosulphonic acid.
Anisole-*anti*diazocompounds.
Anisolediazo-iodide.
Arylazoacetaldoximes.
Arylazoaldoximes.
o-Aziminobenzaldehyde.
s-p-Azodibenzaldehyde.
4:4'-Azophthalic acid.
5:5'-Azophthalide.
4-p-Azotolueneypyrazolone-3-acetic acid.
Azoxyanisole.
Azoxybenzaldehydes.
Azoxybenzaldoxime.
Azoxybenzene.

Azo compounds. See :—
Azoxybenzylidene-aniline and -toluidines.
Azoxynaphthalene.
1:1'-Azoxynaphthalene-di- and -tetrasulphonic acids.
Azoxypheyl ethers.
p-Azoxy-*o*-toluidine.
Benzene-5-azo/*d*amino-*m*-xylene.
Benzeneazoaspidinol.
Benzeneazobenzaldehyde.
Benzeneazobenzylideneaniline.
Benzeneazobromo-*a*-naphthol.
Benzeneazodichloro-*m*-phenylenediamines.
Benzeneazochlorotolylenediamines.
Benzeneazodihydroxyazophthalene.
Benzeneazofilicyl-*n*-butanone.
Benzeneazo-*o*-hydroxyazoxybenzene.
Benzeneazomethylphloroglucinol-*n*-butanone.
Benzeneazonaphthols.
Benzeneazo-*a*-naphthylamine.
Benzeneazo-*β*-naphthylauramine.
Benzeneazo-10-phenanthrol.
Benzeneazo-*p*-phenoxyacetic acid.
4-Benzeneazo-1-phenyl-3-benzylpyrazolone.
Benzeneazophenylcarbamic acid.
Benzeneazophenylglycine and -*p*-sulphonic acid.
Benzeneazophenylmethylglycine and -*p*-carboxylic and -*p*-sulphonic acids.
Benzene-5-azo-2:4-tetramethyldiaminotoluene.
Benzeneazotoluenes.
Benzene-5-azo-2:4-tolylenediamine.
Benzeneazo-*p*-tolyloxyacetic acid.
Benzenediazoamino-1-chloronaphthalene.
Benzenediazoaminotetrahydro-*β*-naphthalene.
Benzenediazoaminotoluenes.
Benzeneantidiazohydrate.
Benzenediazo-iodide.
Benzenediazo-*p*-nitrophenylsulphone.
Benzenediazonium salts.
Benzeneantidiazotate.
Benzenedisazofilic acid.
Benzenedisazo-1:3:5-trihydroxyphenyl-*n*-butanone.
Benzophenone-*p*-antidiazocompounds.
p-Benzoyl-amino- and -chloroaminoazobenzene.
Benzylazotate, potassium.
Bisazoxyacetic acid.
Bisdiazoacetic acid.
Carbanilophenylazoacetaldoxime.
4-Carboxybenzeneazo-1:3-diphenylpyrazolone.
4-Carboxybenzeneazo-3-phenyl-5-*iso*-oxazolone.

Azo-compounds. See :—

Carboxyphenylazobenzoylacetic acid.
 Cinnamylidene-*p*-aminoazobenzene.
 Diazoacetamides.
Diazo-p-acetaminobenzene chloride.
Diazoacetic acid.
Diazoamines.
2-Diazoamino-1-chloronaphthalene.
Diazoamino-compounds.
Diazoaminotetrahydro- β -naphthalene.
Diazoaminotoluenes.
 α -Diazoanthraquinone.
1-Diazoanthraquinone-2-sulphonic anhydride.
Diazobenzene.
Diazobenzene chloride.
*Diazobenzene-*p*-sulphonic acid.*
Diazo-2:6-dibromoanisole.
Diazo-chlorides.
Diazo-compounds.
Diazogallic acid.
antiDiazo-hydrates.
2-Diazonaphthalene-8-sulphonic anhydride.
Diazoisonitrosomethyluracil.
Diazonium salts.
Diazothiosulphonates.
Diazotoluene chlorides.
3':3'-Dimethylazobenzene.
Dimethylketazine.
*Dimethyl-*p*-phenylenediamine, diazo-chloride of.*
*Diphenyl-*p*-azophenylene.*
Diphenylazophenylmethylglycine.
Diphenylbisazobenzoylacetic acid.
1:5-Diphenyl-3-methylpyrazole-4-azo-benzene.
4-Ethoxyazobenzene.
 p -cycloHexylbenzenediazonium sulphate.
 p -Hydroxyazobenzene.
Hydroxyazonaphthalene-5:5'-disulphonic acid.
Hydroxyazoxybenzenes.
4-Hydroxy-5-benzeneazo-2:6-diphenyl-pyrimidine.
2-Hydroxy-1-benzeneazo-3-naphthoic acid.
3-Hydroxybenzeneazoxindone.
2-Hydroxy-5-methylazobenzene.
 *δ -Hydroxy- α -phenylazo- β -methyl-imino- δ -*p*-nitrophenylvaleric acid.*
Methoxylaminoazobenzene.
4-Methoxyazoxybenzene.
Methylamino-2:6-azobenzene.
Methylazobenzene.
Methylazotates.
Naphthalenecazobenzenesulphone.
Naphthalene-2-azo- β -naphthol.
 β -Naphthalenediazoaminotetrahydro- β -naphthalene.
Naphthalenediazonium hydroxides.

Azo-compounds. See :—

Oxyazo-compounds.
Phenanthrolazobenzenesulphonic acids.
Phenylazoacetaldoxime.
Phenylazoacetooacetic acid.
Phenylazoacetylacetone.
*Phenyllazoacetyl-*p*-nitrobenzoylacetic acid.*
Phenylazoalkylaldoximes.
Phenylazoaminocrotonic acid.
*Phenylazobenzoyl-*p*-nitrobenzoylacetic acid.*
Phenylazodibenzoylacetic acid.
Phenylazo-1:2-diketopentamethylene.
Phenylazodioxydiazinecarboxylic acid.
Phenylazoethylideneenitronic acid.
Phenylazomethylaminoenitronic acid.
*Phenylazo-*m*-nitrobenzoylacetic acid.*
 α -Phenylazo- δ -nitrophenylpentane- δ -ol- β -onecarboxylic acid.
 *α -Phenylazo- δ -*p*-nitrophenylpentane- β -one- $\alpha\delta$ -olide.*
Phenylazoxycetaldoxime.
Phenyldiazomethane.
 α -Phenyl- β -6-diazo-3-methoxycin-namic acid.
 p -Propionyl-amino- and -chloroamino-azobenzene.
*Quinol *p*-azoxydiphenyl and *p*-azodi-phenyl ethers.*
Resorcinolazodiphenylaminesulphoxide.
4-Sulphobenzeneazo-1:3-diphenyl-pyrazolone.
*Tetra-azo-*oo*-dimethoxydiphenyl chloride.*
Tetra-azodiphenyl chlorides.
Tetra-azidotolyl chlorides.
Tetra-azidotolylsulphonic acid.
Tetra-azonium chlorides.
 $\alpha\tau$ -Tetrahydronaphthaleneazo- β -naphthol.
Tetrahydro- β -naphthaleneazo- β -naphthylamine.
 *p -Toluene-5-azo-4;6-diamino-*m*-xylene.*
 p -Toluene-3-azo-5-chloro-2;4-tolylene-diamine.
 *p -Tolueneazo-*p*-nitrobenzene.*
 *p -Tolueneazo-*p*-phenoxyacetic acid.*
 p -Toluenediazoaminotetrahydro- β -naphthalene.
Tolueneantidiazotates.
 n -Tolueneantidiazohydrate.
 p -Tolueneantidiazocompounds.
 *p -Tolylamino-*m*-hydroxyphenyl- μ -cyanoazomethine-*p*-nitrobenzene.*
 *p -Tolylamino- α -naphthyl-4-cyanoazo-methine-*p*-nitrophenyl.*
 p -Tolylazoacetaldoxime.
 σ -Tolylazobenzoylacetic acid.

Azo-compounds. See :—

p-Tolylazocarbonamide.
o-Triazobenzaldoxime.
o-Triazobenzamide.
Vanillylidene-*p*-aminoazobenzene.
Xyleneazobenzenes.

s.p-**Azodibenzaldehyde** and its methyl ether and diphenylhydrazone (FREUDLER), A., i, 650.

Azo-dyes (SEYEWETZ and BIOT), A., i, 509.

new system of classification of (BUCHERER), A., i, 577.

from the action of aromatic phenols and amines on the diazo-compounds of 4- and 6-chloroanthranilic acid (COHN), A., i, 63.

from phenylmethylglycine and phenyl-glycine (MAI), A., i, 249.

presence of diazoamino- or diazo-oxy-compounds in (VAUBEL), A., i, 407.

Azo-dyes, nitro-, action of sulphides, sulphites and hydrosulphites on (ROSENSTIEHL and SUAIS), A., i, 406.
o-nitro-, reduction of (ROSENSTIEHL and SUAIS), A., i, 406.

Azoimide, preparation of (TANATAR), A., ii, 450.

Azonium compounds, relation of oxazine and thiazine colouring matters to (KEHRMANN), A., i, 566.

Azophenine, $C_{31}H_{26}ON_4$, from aniline and nitroso-*m*-hydroxyphenyl-*p*-tolylamine (GNEHM and VEILLON), A., i, 287.

4:4'-Azopthalic acid and 5:5'-Azopthalide (BOGERT and BOROSCHEK), A., i, 98.

4-p-Azotolueneypyrazolone-3-acetic acid, ethyl ester (KUFFERATH), A., i, 59.

Azoxyanisole and quinol, behaviour of a mixture of, on cooling (ROOZEBOOM), A., ii, 490.

m-Azoxybenzaldehyde and its phenyl-hydrazine (ALWAY), A., i, 697.

p-Azoxybenzaldehyde (ALWAY), A., i, 649, 697.
nitro- (ALWAY), A., i, 697.

o-Azoxybenzaldoxime (BAMBERGER and DEMUTH), A., i, 95.

Azoxybenzene and its derivatives, intramolecular rearrangement of atoms in (KNIPSCHER), A., i, 648.

p-Azoxybenzylidene-aniline and chloride (ALWAY), A., i, 697.

Azoxybenzylidene-aniline and -toluidines (ALWAY), A., i, 649.

Azoxynaphthalene, 5:5'-dinitro- (WACKER), A., i, 506.

1:1'-Azoxynaphthalene-5:5'-di- and -3:8:3':8'-tetra-sulphonic acids and their salts (WACKER), A., i, 506.

Azoxypheyl ethers, o- and p- (HAEUS-SERMANN and SCHMIDT), A., i, 126.

p-Azoxy-*o*-toluidine (ROSENSTIEHL and SUAIS), A., i, 406.

B.

Bacillus, butyric, occurrence and biological relations of the mobile (SCHATTENFROH), A., ii, 467.

coli communis, action of, on urine (NOËL-PATON), A., ii, 679.

fluorescens liquefaciens, action of, on albumin (EMMERLING and REISER), A., ii, 279.

leprae, cultivation of (VAN HOUTUM), A., ii, 682.

megatherium, haemolysin of (TODD), A., ii, 464.

mucus-forming (SCHARDINGER), A., ii, 469.

Bacteria, composition of the proteids and cell-membranes in (IWANOFF), A., ii, 279.

decomposition of butter fat by (LAXA), A., ii, 97.

decomposition of nitrates and nitrites by (MAASSEN), A., ii, 39.

effect of nitrates on (PAKES), A., ii, 97.

formation of oxalic acid by (BANNING), A., ii, 469.

formation of tyrosinase by (LEHMANN), A., i, 580.

common, transformation of, into parasites of roots (LEPOUTRE), A., ii, 467.

denitrifying and nitrifying. See Agricultural Chemistry.

pathogenic, variations in the products formed by (CHARRIN and GUILLEMONT), A., ii, 576.

Bactericidal substances, formation of, in autolysis (CONRADI), A., ii, 35.

Bacteriolysis and haemolysis (BULLOCH), A., ii, 94.

Balance, chemical, with constant load (GAWALOWSKI), A., ii, 202.

Balance Sheet of the Chemical Society, and of the Research Fund, March, 1901. See Annual General Meeting, T., 622.

Balsam, white Peru (BILTZ), A., i, 634.

Balsams, copaiva, resins of (TSCHIRCH and KETO), A., i, 166.

See also Resins.

Bananas. See Agricultural Chemistry.

Barium, preparation of (GUNTZ ; STANSFIELD), A., ii, 188.

Barium alloys, with cadmium (GAUTIER), A., ii, 397.

- Barium** aluminate as a disencrusting agent (ARTH), A., ii, 399.
 borates, action of carbon dioxide on (JONES), A., ii, 630.
 bromide and iodide, temperature of maximum density and electrical conductivity of solutions of (DE COPPET and MULLER), A., ii, 488.
 chloride, action of, on ammonium phosphates (BERTHELOT), A., ii, 258.
 hydride and nitride, formation and stability of (GAUTIER), A., ii, 453.
 tetraiodide (MEYER), A., ii, 319.
 nitrate, spectrum of (HARTLEY), T., 570; P., 1902, 68.
 silicate, hydrated (WAHL), A., ii, 501.
 sulphate, solubility of, in aluminium chloride, ferric chloride, and magnesium chloride (FRAPS), A., ii, 394.
 as a reagent for colloidal metallic solutions (VANINO), A., ii, 249.
- Barium organic compounds:**—
 cadmium thiocyanate (GROSSMANN), A., i, 663.
- Barley.** See Agricultural Chemistry.
- Barylite** (WEIBULL), A., ii, 408.
- Barytes** from the Province Caserta (FRANCO), A., ii, 211.
- Base** (m. p. 252–253°), from the reduction of dinitrohydroxyphenozone (HILLYER), A., i, 50.
 from the dye from 2:3:8-trihydroxy-naphthalene and diazotised sulphuric acid (FRIEDLÄNDER and SILBERSTERN), A., i, 795.
- $C_6H_{14}N_2$, and its salts, from the action of alkalis on methylchloroethylamine (MARCKWALD and FROBENIUS), A., i, 23.
- $C_8H_{13}N$, from methylheptenoneoxime and phosphoric oxide (WALLACH), A., i, 79.
- $C_8H_{15}N$, and its benzoyl and benzaldehyde derivatives, from the action of bromine on methylheptenylamine (WALLACH, MEYER, and MITTELSTENSCHEID), A., i, 81.
- $C_8H_{19}ON$, and its platinichloride, from 3-keto-2:2:5:5-tetramethylpyrrolidine (PAULY), A., i, 560.
- $C_9H_{15}N$, from the action of methyl iodide on methylheptenylamine (WALLACH, MEYER, and MITTELSTENSCHEID), A., i, 81.
- $C_{10}H_{11}N$, from the condensation of pyrrole (PLANCHER), A., i, 640.
- $C_{12}H_{15}N$ and $C_{12}H_{17}N$, and their salts, from 2:5-dimethylpyrrole (PLANCHER), A., i, 640.
- Base**, $C_{14}H_{18}O_4N_2$, and its salts and methiodide, from hydrocotarninecarboxyamide methiodide (FREUND and BAMBERG), A., i, 556.
- $C_{16}H_{21}ON$, and its salts, from fluorene-quinoline (DIELS and STAELIN), A., i, 830.
- $C_{16}H_{19}O_4N_4$ (?), from the oxidation of copyrine derivatives (GABRIEL and COLMAN), A., i, 401.
- $C_{17}H_{21}ON$, and its picrate and benzoyl derivative from phenylchloromethylenecamphor (FORSTER), P., 1902, 237.
- $C_{17}H_{21}ON$, and its picrate and bromo-derivative from enolic benzoylcamphor (FORSTER), P., 1902, 237.
- $C_{19}H_{20}N_2$, from the action of potassium hydroxide on cinchotinesulphonic acid (SCHMID), A., i, 53.
- $C_{20}H_{25}ON$, from 2-p-methoxy-6-phenylbzazole (OLLENDORFF), A., i, 828.
- $C_{25}H_{21}ON_3$ and $C_{27}H_{25}ON_3$, from *p*-tolyl- α -naphthylamine and nitroso-dimethyl- and -diethyl-*m*-aminophenol (GNEHM and RÜBEL), A., i, 146.
- $C_{29}H_{23}ON$, and its salts, and bromo-derivative, from the condensation of dimethylaminobenzaldehyde and β -naphthol (HEWITT, TURNER, and BRADLEY), T., 1208; P., 1902, 181.
- $C_{29}H_{25}O_2N$, and its anhydride, from the condensation of dimethylaminobenzaldehyde and β -naphthol (HEWITT, TURNER, and BRADLEY), T., 1208; P., 1902, 181.
- Bases**, acids, and salts, dissociation of, at different temperatures (JONES and DOUGLAS), A., ii, 59.
 from *d*-lupanine (SOLDAINI), A., i, 638.
 in Scottish shale oil (GARRETT and SMYTHE), T., 449; P., 1900, 190; 1902, 47.
 of complex function, colorimetric titration of (BERTHELOT), A., i, 199.
 aromatic, preparation of, by the aid of formaldehyde (ERDMANN), A., i, 91.
 new, from methyleneaniline and its homologues (ERDMANN), A., i, 91.
 use of, for the precipitation and separation of the rare earth metals (JEFFERSON), A., ii, 534.
 tertiary, preparation of, from their alkyl-haloids (PINNOW), A., i, 92.
 organic, condensing action of (KNOEVENAGEL and SPEYER), A., i, 226.
 compounds of, with thallic chloride (RENZ; MEYER), A., i, 393.

- Bases**, organic, separation of, from their phosphotungstic acid precipitates (WINTERSTEIN), A., ii, 294.
- Basic slag**. See Slag, basic, and also Agricultural Chemistry.
- Basic substances**, intensifying action of, on oxidising agents (SCHAER), A., ii, 140, 603.
- Basicity**, relative, of the amino-groups in substituted diamines (BÜLOW and LIST), A., i, 237, 312.
- Bassia latifolia**, sugar from the blossom of (v. LIPPMPANN), A., ii, 420.
- Baumhauerite** (SOLLY and JACKSON), A., ii, 403.
- Bauxite** from Italy (FORMENTI), A., ii, 569.
- Bay oil**, myrcene from (HARRIES), A., i, 811.
- Beans**. See Agricultural Chemistry.
- Bear**, Isabella, bile of the (v. ZUM-BUSCH), A., ii, 573.
- Beer**, origin of arsenic in (PETERMANN), A., ii, 471.
- detection and estimation of minute quantities of arsenic in (REPORT OF JOINT COMMITTEE), A., ii, 288.
- detection of artificial sweetening materials in (SARTORI), A., ii, 187.
- Beetroots**, estimation of potassium in (BOES), A., ii, 474.
- estimation of sugar in (HILTNER and THATCHER), A., ii, 111.
- See also Agricultural Chemistry.
- Benz-**. See also Benzo-, Benzoyl-, and under the Parent Substance.
- Benzaldehyde**, electrolytic production of (NITHACK), A., i, 291.
- specific heat and heat of vaporisation of (LUGININ), A., ii, 548.
- action of, on anisole, *p*-cresol and *o*- and *p*-tolyl methyl ethers (FEUERSTEIN and LIPP), A., i, 768.
- condensation of, with benzyl methyl ketone (GOLDSCHMIEDT and KRCZ-MAŘ), A., i, 40.
- condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 820.
- action of, on methylidiamino-2:6-azobenzene (PERUCCHETTI), A., i, 330.
- condensation of, with methyl ethyl ketone (HARRIES and MÜLLER), A., i, 295.
- condensation of, with methyl propyl ketone (HARRIES and BROMBERGER), A., i, 792.
- compound of, with mercuric chloride (STOLLE), A., i, 468.
- Benzaldehyde**, *p*-chloro-, compounds of, with amines (v. WALTHER and RAETZE), A., i, 466.
- Benzaldehyde**, *o*-nitro-, action of light on (CIAMICIAN and SILBER), A., i, 434.
- p*-nitro-, condensation of, with 2:4-lutidine (KNICK), A., i, 825.
- 2:4-dinitro-, and its oxime and phenylhydrazone (COHN and FRIEDLÄNDER), A., i, 376; (FRIEDLÄNDER and COHN), A., i, 791.
- and its phenylhydrazones, and sodium hydrogen sulphite (SACHS and KEMPF), A., i, 377.
- 2:4:6-trinitro- (SACHS, KEMPF, and EVERDING), A., i, 378.
- nitroamino*-, phenylhydrazone of (SACHS and KEMPF), A., i, 377.
- Benzaldehyde-aniline**, and *p*-nitro-aniline hydrochlorides (DIMROTH and ZOEPPRITZ), A., i, 293.
- Benzaldehydebenzylmercaptal**, *m*- and *p*-nitro- (POSNER), A., i, 623.
- Benzaldehydedialkyl- and -diarylsulphones**, *o*-, *m*-, and *p*-nitro- (POSNER), A., i, 622.
- Benzaldehyde-*p*-dimethyl- and -*p*-diethyl-anil**, *p*-mono- and 2:4-di-nitro- (SACHS and KEMPF), A., i, 377.
- Benzaldehyde-β-naphthylamine hydrochloride** (DIMROTH and ZOEPPRITZ), A., i, 293.
- Benzaldehydophenylhydrazone-*p*-sulphonic acid hydrate**, and *m*-nitro- (BILTZ, MAUÉ, and SIEDEN), A., i, 572.
- 2:4-dinitro- (SACHS and KEMPF), A., i, 377.
- Benzaldehydepypyrrylhydrazone** (PICCININI and SALMONI), A., i, 491.
- Benzaldehydesemicarbazone**, 2:4-di-nitro-, and 2:4-nitroamino-, and its *ON*-diacetyl derivative (SACHS and KEMPF), A., i, 682.
- Benzaldoxime** and *o*-amino- and *o*-nitro- (BAMBERGER and DEMUTH), A., i, 95.
- 2:4-diamino-, nitroamino-, and 2:4-dinitro- (SACHS and KEMPF), A., i, 377.
- p*-nitro-, *N*-*p*-formylphenyl ether, and its phenylhydrazone (ALWAY), A., i, 697.
- op*-dinitro-, and its benzoyl derivative (FRIEDLÄNDER and COHN), A., i, 791.
- Benzamide**, *p*-iodo- (MEYER), A., i, 31.
- op*-dinitro- (FRIEDLÄNDER and COHN), A., i, 791.
- Benzamidine**, action of, on β -bromo- ω -benzylacetophenone (KUNCKELL and SARFERT), A., i, 835.
- action of mucobromic and mucochloric acids on (KUNCKELL and v. ZUM-BUSCH), A., i, 835.

- Benzanilide**, *o*-bromo-, 2:4-*dibromo*- and -*dichloro*-, 2:4- and 4:2-chlorobromo- (CHATTAWAY and WADMORE), T., 985; P., 1902, 173.
- Benzene**, stereochemical formulae of (MARSH), T., 961; P., 1902, 164; (GRAEBE), A., i, 209; (MARCKWALD), A., i, 274; (VAUBEL), A., i, 361.
- molecular rise of boiling point of, at different temperatures (INNES), T., 683; P., 1902, 26.
- catalysis by iodine in the bromination of (BRUNER), A., ii, 447.
- reaction of, with cellulose (NASTUKOFF), A., i, 362, 747.
- action of copper nitrate on (WASSILIEFF), A., i, 361.
- condensation of, with diphenic anhydride (GÖTZ), A., i, 372.
- action of sulphur chloride on (LIPP-MANN and POLLAK), A., i, 750.
- influence of, on the rotation of ethyl tartrate (PATTERSON), T., 1097; P., 1902, 133.
- Benzene**, halogen derivatives, condensation of, with carbon tetrachloride (NORRIS and GREEN), A., i, 379.
- bromo- and chloro-, vapour pressures and boiling points of mixtures of (YOUNG and FORTHEY), T., 771; P., 1902, 107.
- 3:4:5-*tribromonitro*-, derivatives of (JACKSON and FISKE), A., i, 362.
- 2:4:6-*tribromo-1-nitroamino*-, and 2:4:6-*trichloro-1-nitroamino*- (ORTON), T., 491; P., 1902, 59.
- 1-chloro-2:4-*dinitro*-, action of sodium nitrite on (KYM), A., i, 16.
- compounds of, with 4:4'-tetramethyl- and 4:4'-tetraethylidene-*diaminodiphenylmethane* (LEMOULT), A., i, 751.
- 1-chloro-2:4:6-*trinitro*-, compound of, with 4:4'-tetramethylidene-*diaminodiphenylmethane* (LEMOULT), A., i, 751.
- 1:3-dichloro-4:6-*dinitro*-, derivatives of (BLANKSMA and MEERUM TERWOGT), A., i, 715.
- 1-chloronitroamino-2:4:6-*trichloro*-, -2:4:6-*tri*- and -2:3:4:6-*tetra-bromo*-, and -4-chloro-2:6-*dibromo*- (ORTON), T., 966; P., 1902, 174.
- 1-chloro-4:6-*dinitro-2-cyano*- (BLANKSMA), A., i, 281.
- iodo-, iodoamino-, and iodonitro-derivatives of (WILLGERODT and ARNOLD), A., i, 16.
- isomeric iodonitro-derivatives, simultaneous formation of (HOLLEMAN and DE BRUYN), A., i, 87.
- Benzene**, *s-diiodonitro*-, containing polyvalent iodine, derivatives of (WILLGERODT and ERNST), A., i, 17.
- 3:6-*diiodonitro*- (BRENANS), A., i, 673.
- nitro-, action of light on (CIAMICIAN and SILBER), A., i, 433.
- 1:3:5-*trinitro*-, reduction of, with hydrogen sulphide (COHEN and DAKIN), T., 26; P., 1901, 214.
- nitroamino-, action of chlorine and bromine on (ORTON), T., 965; P., 1902, 174.
- 1-nitroamino-*di*-, *tri*-, and *tetra*-halogen- and 1-nitroamino-*di*- and -*tri*-halogennitro-, preparation of (ORTON), T., 806; P., 1902, 111.
- nitroso-, spontaneous decomposition of (BAMBERGER), A., i, 505.
- action of alcoholic potassium hydroxide or formaldehyde on (BAMBERGER), A., i, 279.
- Benzenes**, halogenised, influence of alkyl groups on the activity of (KLAGES and STORP), A., i, 670.
- Benzene-5-azo-2:4- and 4:6-*diamino-m-xylene***, and their diacetyl derivatives (MORGAN), T., 94; P., 1901, 237.
- Benzeneazoaspidinol** (BOEHM), A., i, 37.
- Benzene-p-azobenzaldehyde** and its methyl ether and phenylhydrazone (FREUNDLER), A., i, 650.
- Benzeneazo-benzaldehyde** and its phenylhydrazone, and -benzylideneaniline (ÅLWAY), A., i, 697.
- Benzeneazobromo- α -naphthol** and its ethyl ether, and acetyl derivative (HEWITT and AULD), T., 174; P., 1901, 264.
- Benzene-4- and -2-azo-2:5- and 4:6-*di-chloro-m-phenylenediamines***, *p*-nitro- (MORGAN and NORMAN), T., 1383; P., 1902, 185.
- Benzene-3-azo-5-chloro-2:4-tolylene-diamine**, and **Benzene-6-azo-2-chloro-3:5-tolylene-diamine** and their dibenzoyl and diacetyl derivatives (MORGAN), T., 96; P., 1901, 237.
- Benzeneazo-*p*-cresolmercury salts** (DIMROTH), A., i, 850.
- Benzeneazodihydroxynaphthalene** (FRIEDLÄNDER and SILBERSTERN), A., i, 794.
- Benzeneazoflicyl-*n*-butanone** (BOEHM), A., i, 36.
- Benzeneazo-*o*-hydroxyazoxylbenzene** (BAMBERGER), A., i, 505.
- Benzeneazo-*o*-hydroxyphenolmercury salts** (DIMROTH), A., i, 850.
- Benzeneazomethylphloroglucinol-*n*-butanone** (BOEHM), A., i, 38.

- Benzeneazo- α -naphthol**, relationship between the orientation of substituents in, and the constitution of; and its isomeric bromo-compounds and their acetyl derivatives (HEWITT and AULD), T., 171; P., 1901, 264.
- Benzeneazo- β -naphthol**, action of bromine and of nitric acid on (HEWITT and AULD), T., 1202; P., 1902, 180.
- o*-, *m*-, and *p*-bromo-, and their acyl derivatives (HEWITT and AULD), T., 1206; P., 1902, 180.
- Benzeneazo- α -naphthylamine**, *p*-chloro-, and its hydrochloride (BAMBERGER and GROB), A., i, 218.
- Benzeneazo- β -naphthylauramine** (MÖHLAU and GRAELERT), A., i, 63.
- Benzeneazo- α -naphthyl- and -phenyl-leucauramine** (GNEHM and WRIGHT), A., i, 295.
- Benzeneazo-10-phenanthrol** (WERNER), A., i, 439.
- Benzeneazo-*p*-phenoxyacetic acid** and its derivatives and -*p*-sulphonic acid (MAI and SCHWABACHER), A., i, 126.
- 4-Benzeneazo-1-phenyl-3-benzylpyrazolone** (BÜLOW and HAILER), A., i, 326.
- Benzeneazophenylcarbamic acid**, methyl ester (MAI), A., i, 250.
- Benzeneazophenylglycine** and its -*p*-sulphonic acid (MAI), A., i, 250.
- Benzeneazophenylmethylglycine** and its -*p*-carboxylic and -*p*-sulphonic acids (MAI), A., i, 249.
- Benzene 5-azo-2,4-tetramethyldiaminotoluene**, *p*-nitro- (MORGAN), T., 656; P., 1902, 87.
- Benzeneazotoluenes** (MEHNER), A., i, 577.
- Benzene-5-azo-2,4-tolylenediamine** and its diacetyl derivative (MORGAN), T., 94; P., 1901, 237.
- p*-bromo-, and its acyl derivatives (MORGAN and NORMAN), T., 1384; P., 1902, 185.
- Benzeneazo-*p*-tolyloxyacetic acid** (MAI and SCHWABACHER), A., i, 127.
- Benzeneazo**. See also Phenylazo.
- Benzene-2-diazoamino-1-chloronaphthalene**, *o*- and *m*-nitro- (MORGAN), T., 1380; P., 1902, 185.
- p*-nitro-, and its ethyl derivative (MORGAN), T., 99; P., 1901, 238.
- Benzenediazoaminotetrahydro- β -naphthalene**, *p*-bromo-, and *o*- and *p*-nitro- (SMITH), T., 904; P., 1902, 137.
- Benzenediazoaminotoluenes**, and nitro- (MEINER), A., i, 577.
- Benzeneantidiazo-hydrate** and **Benzeneantidiazotate**, potassium derivative, 2:4:6-tribromo- (HANTZSCH and POHL), A., i, 843.
- Benzenediazo-iodide**, *p*-mono- and 2:4-*di*-bromo- (EULER and HANTZSCH), A., i, 191.
- Benzenediazo-*p*-nitrophenylsulphone**, *p*-nitro- (EKBOOM), A., i, 327.
- Benzenediazonium**. See Diazonium.
- m-Benzenedibenzylidisulphone** (AUTENRIETH and HENNINGS), A., i, 390.
- Benzenedisazofilic acid** (BOEHM), A., i, 36.
- Benzenedisazo-1:3:5-trihydroxyphenyl-*n*-butanone** (BOEHM), A., i, 39.
- m*-**Benzenedisulphoneanilide** and its diacetyl and dibenzyl derivatives (AUTENRIETH and HENNINGS), A., i, 389.
- m-Benzenedisulphonehydroxylamine** (AUTENRIETH and HENNINGS), A., i, 390.
- m-Benzenediiododimethylidisulphone** (AUTENRIETH and HENNINGS), A., i, 389.
- Benzenepentacarboxylic acid** and its potassium hydrogen salts (WOLFR, GABLER, and HEYL), A., i, 678.
- Benzene ring**, gradual synthesis of the (DELACRE), A., i, 774.
- Benzenesulphonic acid**, *p*-iodo- (TRÖGER and HURDELBRINK), A., i, 275.
- Benzenesulphomethylchloroethylamide** (MARCKWALD and FROBENIUS), A., i, 23.
- Benzenesulphonanilide**, action of sodium hypochlorite on (COHEN and THOMPSON), P., 1901, 262.
- Benzenesulphonic acid**, 3- and 10-phenanthryl esters (WERNER), A., i, 438.
- p*-nitro- (EKBOOM), A., i, 274.
- Benzene-*m*-sulphonic chloride**, action of arylamines on (TRÖGER and MEINE), A., i, 537.
- Benzenesulphophenanthraquinones**, 2- and 3- (WERNER), A., i, 627.
- Benzeneethosulphonic acids**, *p*-halogen- and their salts (TRÖGER and HURDELBRINK), A., i, 274.
- m-Benzenedithiosulphonic acid**, alkaloidal and metallic salts (TRÖGER and MEINE), A., i, 599.
- Benzenoid amines**. See Amines.
- Benzenoid aminosulphonic acids**, acetyl derivatives of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 445.
- Benzhydrol**, preparation of (MÖHLAU and HEINZE), A., i, 243.
- Benzhydroxamic acid** (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1573.
- Benzhydryl-5-fluorenol** and its diacetate, and oxidation (GÖTZ), A., i, 373.

- B**-Benzhydrylpycolinolactone (JEITELES), A., i, 62.
- Benzidine**, formation of, from hydrazobenzene (CHATTAWAY), P., 1902, 175; (RASSOW and RÜLKE), A., i, 404; (SACHS and WHITTAKER), A., i, 510.
and its dipicrate, and dyes from its diazotisation (SCHULTZ and FLACHSLÄNDER), A., i, 751.
- Benzidinedi-p-chloromandelonitrile** (v. WALTHER and RAETZE), A., i, 467.
- Benzidinedimalonic acid**, ethyl ester (MOIR), P., 1902, 195.
- Benzil**, action of semicarbazide on (POSNER), A., i, 82; (BILTZ and ARND), A., i, 245.
- 4:4'-dichloro- (MONTAGNE), A., i, 472.
- Benzilnilide** (LAMBLING), A., i, 756.
- Benzildisemicarbazone** (BILTZ and ARND), A., i, 245.
- Benzilic acid** (*hydroxydiphenylacetic acid, diphenylglycollic acid*), ethyl ester, phenylurethane of (LAMBLING), A., i, 756.
- 4:4'-dichloro-, and its silver salt and methyl ester (MONTAGNE), A., i, 473.
- Benzimonosemicarbazones**, α - and β - (POSNER), A., i, 82; (BILTZ and ARND), A., i, 245.
- Benzimino-ethyl ether**, action of sodamide on (TITHERLEY), T., 1529.
- "**Benzine**," commercial (RABINOVITSCH), A., i, 333.
- Benzo-**. See also Benz-, Benzoyl-, and under the Parent Substance.
- 2:7-Benzodiazine**. See Copyrine.
- Benzoic acetic peroxide**, formation, decomposition and germicidal action of (FREEER and NOVY), A., i, 368.
- Benzoic acid**, synthesis of, as a lecture experiment (ZELINSKY), A., i, 675.
and its salts, detection of, in food (DE BREVANS), A., ii, 112.
- Benzoic acid**, salts, solubilities of (TARUGI and CHECCHI), A., i, 204.
anhydrous mercuric salt, and the action of heat on (DIMROTH), A., i, 851.
silversalt, solubility of (LIEBERMANN), A., i, 368.
- Benzoic acid**, esters, action of sodamide and its acyl derivatives on (TITHERLEY), T., 1527; P., 1902, 187.
chloromethyl ester (DESCUDÉ), A., i, 149, 339, 451.
methyl ester, *o*-sulphonic chloride of (BASLER CHEMISCHE FABRIK), A., i, 363.
methylene ester (DESCUDÉ), A., i, 149, 451.
- Benzoic acid**, 2-amino-. See Anthranilic acid.
- m*-amino-, reduction of (BAUER and EINHORN), A., i, 224.
- 3-amino-, and 2-chloro-3-amino (HOLLEMAN and VOERMAN), A., i, 451.
- m*-, and *p*-amino-, esters, action of formaldehyde on (GOLDSCHMIDT), A., i, 716.
- 2:4- and 2:6-diamino- (SEIDEL and BITTNER), A., i, 719.
- 2:3:5-triamino-, and its sulphate (COHN and SCHIFFERES), A., i, 730.
- p*-bromo-, and its hydrazine derivative (CURTIUS and FRANZEN), A., i, 832.
- isomeric bromonitro- and chloronitro-derivatives, electrical conductivity of (HOLLEMAN and DE BRUYN), A., i, 94.
- m*-chloro-, azoimide and hydrazide of (FOERSTER), A., i, 58.
- 2-chloro-3:5-diamino- and its diacetyl derivative and hydrochloride and sulphate (COHN and SCHIFFERES), A., i, 730.
- 2-chloro-5-nitro- and 2-chloro-3:5-dinitro- (PURGOTTI and CONTARDI), A., i, 777.
- 2-chloro-3:5-dinitro-, and its salts, esters and anhydride (PURGOTTI and CONTARDI), A., i, 778.
- p*-nitro-*o*-nitroso-, and its methyl ester and azo-compound (COHN and FRIEDLÄNDER), A., i, 377; (FRIEDLÄNDER and COHN), A., i, 792.
- o*-nitroso-, action of, on paraldehyde (CIAMICIAN and SILBER), A., i, 378.
- thio-, action of thiocyanates on (WHEELER and MERRIAM), A., i, 537.
- thiol-, methylene ester (WHEELER and MERRIAM), A., i, 538.
- triphenylmethyl ester (WHEELER), A., i, 29.
- Benzoic chloride**, action of ammonium thiocyanate on (BENSON and HILLIER), A., i, 27.
- 3:5-dinitro- (BEREND and HEYMANN), A., i, 470.
- Benzoic cyanides**, imino-, substituted, preparation of (SACHS and GOLDMANN), A., i, 780.
- Benzoic peroxide**, formation, decomposition and germicidal action of (FREEER and NOVY), A., i, 369.
- Benzoic-acetic acid**, methylene ester (DESCUDÉ), A., i, 339.
- o*-**Benzoic sulphinide**. See "Saccharin."
- Benzoic-*o*-, -*m*-, and -*p*-toluic acids**, methylene esters (DESCUDÉ), A., i, 339.

- Benzoin**, action of potassium hydroxide on (KNOEVENAGEL and ARNDS), A., i, 548.
- Benzonitrile**, latent heat of vaporisation of (KAHLENBERG), A., ii, 195.
- 2:4-dinitro-(COHN and FRIEDLÄNDER), A., i, 377; (FRIEDLÄNDER and COHN), A., i, 791.
- 3:5-dinitro-2-amino- (BLANKSMA), A., i, 281.
- Benzophenone**, 2:2'-diamino-, and its salts and diacetyl derivative (BERTRAM), A., i, 436.
- s-op-diamino*-, and its salts and diacetyl derivative (BENÖHR), A., i, 435.
- chloro- and bromo-derivatives of (NORRIS and GREEN), A., i, 379.
- 4:4'-dichloro-, and its 3-amino- and 3-mono- and di-nitro-derivatives (MONTAGNE), A., i, 473.
- o*-nitro- (V. TATSCHALOFF), A., i, 435.
- 2:2'-dinitro- (BERTRAM), A., i, 436.
- Benzophenone-aniline** hydrochloride (DIMROTH and ZOEPFRTZ), A., i, 293.
- Benzophenone-benzylmercaptal** and -di-benzylsulphone (POSNER), A., i, 622.
- Benzophenone-p-antidiazoo-hydrate** and -*p*-nitrosoamine (HANTZSCH and POHL), A., i, 843.
- Benzophenonedi-benzyl-** and -ethyl-sulphones, *m*- and *p*-nitro- (POSNER), A., i, 623.
- Benzophenonediethylsulphone**, *m*-amino- (POSNER), A., i, 624.
- o-Benzophenone-mercury** salts (DIMROTH), A., i, 851.
- 1:4-Benzopyranol** derivatives (BÜLOW and GROTOWSKY), A., i, 554.
- Benz-1:4-pyrone**. See Chromone.
- Benzosulphurylphenylglycinecarboxylic acid** (VÖRLÄNDER, MUMME, and WANGERIN), A., i, 454.
- 1:3:7-Benzotriazine**. See Copazoline.
- Benzoximino ketolactone** and its reactions (STOERMER and KAHLETT), A., i, 457.
- Benzoyl-**. See also Benz, Benzo-, and under the Parent Substance.
- Benzoylacetic acid**, *m*-nitro-, and its acetyl derivative, ethyl esters (BÜLOW and HAIDER), A., i, 327.
- Benzoylacetoacetic acid**, 3:5-dinitro-, ethyl ester (BEREND and HEYMANN), A., i, 470.
- Benzoylacetyl-o-acetanilide** (CAMPs), A., i, 396.
- Benzoylacetylacetone**, 3:5-dinitro- (BEREND and HEYMANN), A., i, 470.
- p*-Benzoyl-amino-** and -chloroamino-azobenzene (CHATTAWAY), T., 983; P., 1902, 174.
- Benzoyl-o-aminodiphenylamine** (BIEH-RINGER and BUSCH), A., i, 575.
- t*-Benzoyl-d- and *d*-Benzoyl-*a*-amino-*n*-hexoxic acids** (FISCHER and HAGEN-BACH), A., i, 86.
- 4-Benzoylaminophenol**, 2-bromo-6-nitro- (ROBERTSON), T., 1478; P., 1902, 190.
- o*-Benzoylbenzoic** chloride, tetrachloro- (TÉTRY), A., i, 372.
- Benzoylbenzyl-carbamide** and -ethyl-*ψ*-carbamide (WHEELER and JOHNSON), A., i, 366.
- Benzoyl-bromo- and -chloro-camphors**, *aa*, *a'a*, and *aa'-m*-nitro- (FORSTER and MICKLETHWAIT), T., 409; P., 1902, 55.
- Benzoyl-*o*-bromophenylnitrogen bromide** and chloride (CHATTAWAY and WADMORE), T., 986; P., 1902, 173.
- Benzoylbutyrylmethane** (MOUREU and DELANGE), A., i, 164.
- Benzoylcamphor**, enolic, constitution of (FORSTER), P., 1902, 237.
- enolic *o*- and *m*-nitro-, and the acetyl derivative of the *m*-compound (FORSTER and MICKLETHWAIT), T., 410; P., 1902, 55.
- α-Benzoylcamphor**, stereoisomeric halogen derivatives of (FORSTER and MICKLETHWAIT), T., 160; P., 1901, 257.
- Benzoyl-*o*-chlorophenylnitrogen bromide** and chloride (CHATTAWAY and WADMORE), T., 984; P., 1902, 173.
- Benzoylcochenilic anhydride** (LIEBERMAN and LINDENBAUM), A., i, 788.
- Benzoyldiacetylethane**, reactions of (MARCH), A., i, 484.
- Benzoyl-2:4-diethoxyacetophenone** (V. KOSTANECKI and RÓŻYCKI), A., i, 106.
- Benzoyldimethylmalonic acid** (OPPENHEIM), A., i, 186.
- Benzoyldiphenylbenzenylamidine** (LANDER), T., 594; P., 1902, 73.
- Benzoyl-*ψ*-ethylphenylsemicarbazide** (WHEELER and BEARDSLEY), A., i, 503.
- Benzoyl-*o*-flavaniline** (CAMPs), A., i, 178.
- Benzoyl-5-fluorenone** and its oxime and phenylhydrazone, and reduction of (GÖTZ), A., i, 372.
- Benzoylformoxime**, *m*-nitro- (CAMPs), A., i, 295.
- Benzoyl-glycyl- and -glycylglycyl-aminoacetic acids**, and their azoimides and hydrazides (CURTIUS), A., i, 844.
- Benzoylglycylglycylglycylaminoacetic acid** and its amide (CURTIUS), A., i, 844.
- Benzoylhydrazine** and *di-p*-bromo- (CURTIUS and FRANZEN), A., i, 832.

- s-Benzoylhydrazine**, *m*-chloro- (FOERSTER), A., i, 58.
Benzoyliminomethylene ethylene and phenylethylenes disulphides (WHEELER and MERRIAM), A., i, 538.
1-Benzoylimino-2-phenylthiodiazoline (WHEELER and BEARDSLEY), A., i, 503.
N-Benzoylindoxylic acid, ethyl ester (FARBEWERK MÜHLHEIM VORM. A. LEONHARDT & Co.), A., i, 456.
diethyl ester (VORLÄNDER, MUMME, and WANGERIN), A., i, 455.
Benzoylindoxyls, 1- and 3- (VORLÄNDER and DRESCHER), A., i, 720.
αα-Benzoyliodocamphor (FORSTER and JENKINSON), P., 1902, 117.
Benzoyllupinine, and its hydrochloride (MERCK), A., i, 486.
Benzoyl-p-nitrobenzoylacetic acid, ethyl ester (BÜLOW and HAIDER), A., i, 327.
αα-Benzoylnitrocumphor and nitro- (FORSTER and JENKINSON), P., 1902, 117.
1-Benzoyloxycamphene and **Benzoyloxyolefines**, formation of (LEES), P., 1902, 213.
Benzoyloxyphenanthraquinones, 2- and 3- (WEHRER), A., i, 627.
Benzoylphenylacetylene (MOUREU and DELANGE), A., i, 164.
Benzoyl-phenyl-and-phenylene-guanidines (WHEELER and JOHNSON), A., i, 27.
Benzoylphenylhydrazine, nitroso-, and its metallic derivatives (VOSWINCKEL), A., i, 571.
β-Benzoyl-α-phenyl-β-methylhydrazine and α-nitroso- (VOSWINCKEL), A., i, 571.
Benzoylphenylsemithiocarbazide (WHEELER and BEARDSLEY), A., i, 502.
β-Benzoylpicolinic acid and its esters (JEITELES), A., i, 62.
Benzoylpyridines, 2- and 4-, and their oximes, phenylhydrazone, and salts (TSCHITSCHIBABIN), A., i, 175.
Benzoyltartaric acid, ethyl ester, nitration of (FRANKLAND, HEATHCOTE, and GREEN), P., 1902, 251.
5-Benzoylthioacridol and its picrate (EDINGER and ARNOLD), A., i, 181.
Benzoyldithiocarbamic acid, diethyl malonate and ethyl phenylacetate derivatives of (WHEELER), A., i, 28.
ethyl *isobutyrate* derivative of (WHEELER and JOHNSON), A., i, 761.
isopropyl derivative (WHEELER and JAMESON), A., i, 763.
Benzoyldithiocarbamic acid methylene esters (WHEELER and MERRIAM), A., i, 587.
Benzoyl-ψ-thiocarbamides (WHEELER and JOHNSON), A., i, 26.
Benzoylthiocarbimide, action of, on toluene and on hydrogen phosphide (WHEELER), A., i, 29.
Benzoylthioglycoll-o-toluidide (WHEELER and JOHNSON), A., i, 759.
Benzoylthymol, action of formaldehyde on (GOLDSCHMIDT), A., i, 716.
Benzoyl-p-tolyl-carbamide and -ethyl-ψ-carbamide (WHEELER and JOHNSON), A., i, 366.
6-Benzoyl-1:2:4- and -1:4:2-xlenols and their acetates and methyl ethers (BATTOLOTTI and LINARI), A., i, 792.
Benzyl, displacement of, by methyl in substituted nitrogen compounds (JONES), P., 1901, 205.
Benzyl alcohol, specific heat and heat of vaporisation of (LUGININ), A., ii, 548.
action of phosphorus trithiocyanate on (DIXON), T., 171; P., 1901, 261.
Benzyl alcohol, *o*-chloro- (RAIKOW and RASCHTANOW), A., i, 721.
2:4-dinitro- (COHN and FRIEGLÄNDER), A., i, 376; (FRIEGLÄNDER and COHN), A., i, 791.
Benzyl carbonate and chlorocarbonate, *o*-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 78.
chloride, action of ammonia on (DHOMMÉE), A., i, 24.
and iodide, action of, on pyridine (TSCHITSCHIBABIN), A., i, 395.
chloride, *op*-dinitro- (FRIEGLÄNDER and COHN), A., i, 790.
p-nitro-*m*-cyano- (EHRLICH), A., i, 26.
cyanide. See Phenylacetonitrile.
cyanides, amino-, substituted, preparation of (SACHS and GOLDMANN), A., i, 780.
 $\alpha\beta\beta\beta$ -tetrachloroethyl carbonate, *o*-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 78.
mercaptan, *m*-cyano- (EHRLICH), A., i, 26.
hydrogen sulphate, *p*-nitro- (FRIEGLÄNDER and COHN), A., i, 791.
thiocyanate, *m*-cyano- (EHRLICH), A., i, 25.
 ω -Benzylacetophenone, β-bromo-, action of, on benzimidine (KUNCKELL and SARFERT), A., i, 835.
Benzylalkylanilines and their salts (v. BRAUN and SCHWARZ), A., i, 365.
Benzylallylpiperidinium bromide (WEDEKIND), A., i, 234.
Benzylamine, formation of (DHOMMÉE), A., i, 24.
additive salts of (DHOMMÉE), A., i, 601.

- Benzylamine**, *m-* and *p*-cyano-, and their salts (EHRLICH), A., i, 25.
- β -Benzylaminocrotonic acid**, methyl ester (LAPWORTH and HANN), T., 1505; P., 1902, 145.
- Benzyl isomaryl ketone** and its semicarbazone (BLAISE), A., i, 164.
- Benzylaniline**, oxidation of (HÜBNER), A., i, 277.
- Benzylaniline**, 2:4-dinitro-, and its salts (SACHS, KEMPF, and EVERDING), A., i, 378.
and its salts and *p*-sulphonic acid and its salts (COHN and FRIEDLÄNDER), A., i, 376; (FRIEDLÄNDER and COHN), A., i, 790.
- Benzylazotate**, potassium, and its alcoholate (HANTZSCH and LEHMANN), A., i, 325.
- Benzylbromomalonic acid**, methyl ester (CONRAD and REINBACH), A., i, 530.
- Benzylcamphor**, bromo-, crystallography of (MINGUIN), A., i, 685.
- Benzylcarboxyaconic acid**, ethyl ester (RUHEMANN), T., 1214; P., 1902, 181.
- α -Benzyltetrachlorobenzoic chloride, ω -di-chloro** (TÉTRY), A., i, 372.
- Benzyl cinnametyl ketone** (GOLD-SCHMIEDT and KRCZMAŘ), A., i, 41.
- Benzyl-di-ethyl- and -propyl-amines** and their salts (V. BRAUN and SCHWARZ), A., i, 365.
- Benzyl-4-(or 5)-ethoxyphenylketoxime-2-carboxylic acid**, oximino-lactone of (ONNERTZ), A., i, 99.
- Benzyl- β -ethoxyphthalide** (ONNERTZ), A., i, 99.
- Benzylethylaniline** and its *m*- and *p*-amino-, *m*-nitro-, and *p*-nitroso-derivatives and their salts (SCHULTZ and BOSCH), A., i, 364.
- γ -Benzylethyl methyl ketone** (HARRIES and MÜLLER), A., i, 296.
- Benzyl-5-fluorene** (GÖRTZ), A., i, 373.
- β -Benzyl-*o*-hydrazinobenzoic acid** and anhydride (FISCHER and BLOCHMANN), A., i, 646.
- Benzylidene diacetates**, *o*- and *p*- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 102.
- γ -Benzylideneacetone**, α -nitro- (HARRIES), A., i, 185.
- Benzylidene-acetone- and -acetophenone**, *p*-chloro-, and their oximes (V. WALTHER and RAETZE), A., i, 467.
- Benzylideneacetophenone**, compounds of, with β -methylcyclohexanone and with cyclopentanone (STOBBE), A., i, 472.
- dibromides** (POND, YORK, and MOORE), A., i, 105.
- Benzylideneacetophenone**, *o*-, *m*-, and *p*-nitro-, and their dibromides, and semicarbazones (SORGE), A., i, 379.
- Benzylideneacetophenone-acetoacetic acid**, ethyl ester (KNOEVENAGEL and SPEYER), A., i, 227.
- Benzylideneaninoacetonitrile** (KLAGES), A., i, 355.
- Benzylidene-*m*-amino- and -*m*-nitro-acetophenone**, *m*-amino- and *m*-nitro (RUPE and WASSERZUG), A., i, 40.
- Benzylideneaniline**, isomeric additive products of, with benzyl methyl, ethyl, and propyl ketones (FRANCIS and LUDLAM), T., 956; P., 1902, 132.
- Benzylideneaniline**, *m*-nitro-, isomeric additive compounds of, with deoxybenzoin and with dibenzyl ketone (FRANCIS), T., 441; P., 1902, 57.
2:4-dinitro- (COHN and FRIEDLÄNDER), A., i, 376; (SACHS and KEMPF), A., i, 377; (FRIEDLÄNDER and COHN), A., i, 791.
action of light on, in benzene solution (SACHS and KEMPF), A., i, 682.
- Benzylidene-*p*-anisylideneacetone** (V. BAEYER and VILLIGER), A., i, 770.
- Benzylideneazaine**, 2:4:2':4'-tetranitro- (SACHS and KEMPF), A., i, 377.
- Benzylidenebenzidine**, 2:4-dinitro- (SACHS and KEMPF), A., i, 682.
- 4-Benzylidenebis-3-phenyl-5-pyrazolone** and **4-Benzylidene-1-*p*-bromophenyl-3-phenyl-5-pyrazolone** (RABE and ELZE), A., i, 711.
- Benzylidenecamphor**, crystallographic properties of (MINGUIN), A., i, 632.
and bromo-, enantiomorphism of (MINGUIN), A., i, 798.
bromo-derivatives, crystallography of (MINGUIN), A., i, 685.
- Benzylidenecamphoroxime** and its benzoyl derivative, and phenylcarbamate (FORSTER), P., 1902, 90.
- Benzylidenedeoxybenzoin** and its isomeride (STOBBE and NIEDENZU), A., i, 103.
- Benzylidenedimethyl-*p*-phenylenediamine**, 2-chloro-4-nitro-, 2:4-*di*- and 2:4:6-*tri*-nitro- (SACHS), A., i, 119.
- Benzylidene- β -dinaphthyl oxide** and anhydride and their salts (WERNER), A., i, 50.
p-nitro- (ULLMANN, RACOVITZA, and ROZENBAND), A., i, 240.
- Benzylidenedivanillin** and its hexaacetate (ROGOFF), A., i, 103.
m- and *p*-nitro-, and their hexaacetates (ROGOFF), A., i, 547.
- Benzylidene- β -ethoxy-phthalide** and phthalimidine (ONNERTZ), A., i, 99.

- γ*-Benzylidene-ethyl methyl ketone**, and its oxime, phenylhydrazone, and dibromo-derivative (HARRIES and MÜLLER), A., i, 296.
- Benzylidene-glucosamine** (ROUX), A., i, 266.
- α*-Benzylidene-glutaconic acid**, and its potassium salt (HENRICH), A., i, 422.
- Benzylidene-hydrazine** and its acyl and *m*-chloro-derivatives (CURTIUS and FRANZEN), A., i, 831.
- Benzylidene-*o*-hydrazinobenzoic acid** (FISCHER and BLOCHMANN), A., i, 645.
- α*-Benzylidene-lavulic acid** (THIELE, TISCHBEIN, and LOSSOW), A., i, 155.
- Benzylidene-malic acid** and anhydride (THIELE, TISCHBEIN, and LOSSOW), A., i, 156.
- Benzylidene-malonic acid**, *op*-*dinitro*- and its salts and diethyl ester (FRIEDLÄNDER and FRITSCH), A., i, 783.
- Benzylidene-nemethones**, isomeric, and their oximes (MARTINE), A., i, 629.
- Benzylidene-*p*-methylacetophenone** and *o*-, *m*-, and *p*-nitro-, and their semicarbazones (SORGE), A., i, 380.
- Benzylidene-methyl- and -ethyl-amines**, *o*-nitro- (ANDREE), A., i, 210.
- Benzylidene-methyl ethyl ketone** and its oxime, phenylhydrazone, and dibromo-derivative (HARRIES and MÜLLER), A., i, 295.
- Benzylidene-*α*-methylpentanone** (SPERANSKI), A., i, 385.
- Benzylidene-methyl propyl ketone** and its oxime, phenylhydrazone, and semicarbazone and dibromo-compound of the oxime (HARRIES and BROMBERGER), A., i, 792.
- Benzylidene-methyl isopropyl ketone** and its oxime and semicarbazone (LAPWORTH and HANN), T., 1489; P., 1902, 141.
- Benzylidene-*α*-naphthylamine**, *op*-*dinitro*- (FRIEDLÄNDER and COHN), A., i, 791.
- Benzylidene-*m*-nitroaniline**, isomeric additive compounds of, with deoxybenzoin and with dibenzyl ketone (FRANCIS), T., 441; P., 1902, 57.
- Benzylidene-phenylacetylhydrazide** (BOETZELEN), A., i, 58.
- Benzylidene-phenylsemithiocarbazide** (CURTIUS and FRANZEN), A., i, 831.
- Benzylidene-propyl methyl ketone** and its oxime, phenylhydrazone, and semicarbazone (HARRIES and BROMBERGER), A., i, 792.
- Benzylidene-thio-*p*-urazine** (PURGOTTI and VIGANÒ), A., i, 323.
- Benzylidene-thujamenthone** and *iso*-thujone (WALLACH), A., i, 802.
- Benzylidene-*o*-toluidine**, *2:4-dinitro*- (SACHS and KEMPF), A., i, 682.
- Benzylidene-*p*-toluidine**, isomeric additive compounds of, with deoxybenzoin and with dibenzyl ketone (FRANCIS), T., 441; P., 1902, 57.
- op*-*dinitro*- (FRIEDLÄNDER and COHN), A., i, 791.**
- Benzylidene-*p*-urazine**, *m*-nitro- (PURGOTTI and VIGANÒ), A., i, 322.
- 2-Benzylindazole** and 3-chloro- (FISCHER and BLOCHMANN), A., i, 646.
- 11-Benzylindophenazine** (BURACZEWSKI and MARCHEWSKI), A., i, 121.
- Benzyl *p*-methoxycinnamaryl ketone**, and its bromo-derivatives, and the action of hydroxylamine on (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- Benzylmethylacetic acid**, optically active (LAPWORTH and LENTON), P., 1902, 35.
- resolution of, into its optical isomerides (KIPPING), P., 1902, 33.
- Benzyl *p*-methylcinnamaryl ketone**, and the action of bromine and of hydroxylamine on (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- Benzyl 3:4-methylenedioxycinnamaryl ketone** and its dibromide, and the action of hydroxylamine on (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- α*-Benzylmethyl ethyl ketone** and its oxime and phenylhydrazone (HARRIES and MÜLLER), A., i, 296.
- Benzylmethylcyclohexanone**, and its oxime (TÉTRY), A., i, 470.
- Benzyl methyl ketone**, condensation of, with anisaldehyde, benzaldehyde, piperonal, and *p*-tolualdehyde (GOLDSCHMIEDT and KRCZMAŘ), A., i, 40.
- Benzyl methyl, ethyl, and propyl ketones**, preparation of (LUDLAM), T., 1186; P., 1902, 132.
- isomeric additive products of, with benzylidene-aniline (FRANCIS and LUDLAM), T., 956; P., 1902, 132.
- Benzyl-*α*-naphthylamine**, *2:4-dinitro*- (COHN and FRIEDLÄNDER), A., i, 376.
- Benzyl-*p*-nitroaniline**, 5-nitro-2-amino-, and its acetyl derivatives (MEYER and STILLICH), A., i, 319.
- Benzyl phenylethyl ketone** and its oxime (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- Benzylphthalamic acid**, *m*- and *p*-cyano- (EHRLICH), A., i, 25.
- Benzylpiperidines**, 2- and 4-, and their salts (TSCHITSCHIBABIN), A., i, 826.
- 1-Benzylpiperidinium iodide** ethyl acetate (WEDEKIND), A., i, 233.
- Benzyl *n*-propyl ketone** and its semicarbazone (BLAISE), A., i, 164.

- Benzylpyridines**, 2- and 4-, reduction products of (TSCHITSCHIBABIN), A., i, 826.
Benzyl stilbyl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
β-Benzylsulphone-β-methyl-β-phenylethyl and β-Benzylsulphone-β-phenylethyl phenyl ketones (POSNER), A., i, 297.
4-Benzyltetrahydropyridine and its salts (TSCHITSCHIBABIN), A., i, 826.
1-Benzyltetrahydroquinoline (WEDEKIND), A., i, 234.
2-Benzyltetrahydroisoquinoline, and its salts, and compound with ethyl iodooacetate (WEDEKIND and OECHSLEN), A., i, 118.
5-Benzylthioacridol and its salts (EDINGER and ARNOLD), A., i, 181.
Benzyl-o-toluidine, 4-amino- and 4-nitro- (ULLMANN, ROZENBAND, MÜHLHAUSER, and GRETHER), A., i, 242.
Benzyl-p-toluidine, 2:4-dinitro- (COHN and FRIEDLÄNDER), A., i, 376.

p-**Benzyltolyl bromide**, thiocyanate and thiocarbamides (WHEELER and JAMIESON), A., i, 762.

7-Benzyl-1:3:8-trimethylxanthine (BOEHRINGER & SÖHNE), A., i, 504.

Berberidic acid, and its oxidation products (DOBBIE and LAUDER), T., 157; P., 1901, 255.

Berberine, constitution of, **Berberinium hydroxide**, and **Berberinaldehyde** (GADAMER), A., i, 555.

Berberine, Gaze's (GORDIN and MERRILL), A., i, 172.

relation of, to canadine (GADAMER), A., i, 173.

relation of, to corydaline, and its oxidation product (DOBBIE and LAUDER), T., 145, 157; P., 1901, 252, 255.

occurrence and detection of, in plants (GORDIN), A., ii, 368.

estimation of (GORDIN), A., ii, 235.

Berberonic acid (DOBBIE and LAUDER), T., 159; P., 1901, 255.

Bergaptin from bergamot oil (v. SODEN and ROJAHN), A., i, 44.

Beryl from Bosnia (KOCH), A., ii, 568. from the Uralian Emerald Mines (ZEMJATSCHENSKY), A., ii, 29.

Beryllium, quantitative spectra of (HARTLEY), A., ii, 237.

compounds with acyl radicles (LACOMBE), A., i, 418.

chloride, compound of, with iodine trichloride (WEINLAND and SCHLEGLMILCH), A., ii, 315.

thiosulphate (FAKTOR), A., ii, 25.

separation of (WYROUHOFF), A., ii, 605.

Betaine and its salts (WILLSTÄTTER), A., i, 267.

preparation of (STANĚK), A., i, 427.

aurichloride (WILLSTÄTTER), A., i, 267, 661; (FISCHER), A., i, 428.

ε-Betaine, $C_{13}H_{27}O_2N$, and its isomeride, from aminoacetic acids (WALLACH, KÖSCH, and FRESENIUS), A., i, 725.

Betaines (WILLSTÄTTER), A., i, 266.

Beverages, fermented, estimation of uncombined sulphur dioxide in (MATHIEU and BILLON), A., ii, 582.

Bignonia Catalpa, acids of (PIUTTI and COMANDUCCI), A., ii, 523.

Bile and the digestion of proteids (ROSENBERG), A., ii, 216.

effect of injection of micro-organisms on the sterility of (CARMICHAEL), A., ii, 678.

rôle of the, in saponification (PFLÜGER), A., ii, 412.

of the Isabella bear (v. ZUMBUSCH), A., ii, 573.

human (BRAND), A., ii, 572; (TSCHERNAK), A., ii, 678.

Bile acids, circulation of (CROFTAN), A., ii, 573.

pigments (KÜSTER), A., i, 388.

secretion and lymph formation (ELLINGER), A., ii, 614.

Bilirubin and **Biliverdin**, spectrum of (BIER and MARCHLEWSKI), A., i, 636.

Biltong (HALLIBURTON), A., ii, 341.

Bisazoxycetic acid, preparation of (SILBERRAD), T., 601; P., 1902, 44.

Bisidazoacetamide (SILBERRAD), T., 604; P., 1902, 44.

Bisidazoacetic acid, preparation of (SILBERRAD), T., 602; P., 1902, 44.

Bisidinaphthaxanthoneamine (FOSSE), A., i, 51.

Bisidinaphthaxanthonium chloride, and methyl and ethyl ethers, and **Bisidinaphthaxanthylene** (WERNER and GUBSER), A., i, 689.

Bisidinaphthaxanthylsulphonic acid, potassium and sodium salts (WERNER and GUBSER), A., i, 689.

Bis-1-methylbenzoxazole (DIELS and BIBERGEIL), A., i, 219.

Bismuth, radioactive (MARCKWALD), A., ii, 508.

Bismuth alloys with tellurium (GUTBIER), A., ii, 558.

Bismuth salts, double, with the rare earths, isomorphism of (BODMAN), A., ii, 507.

Bismuth nitrate, action of mannitol on (VANINO and HAUSER), A., i, 8.

oxide, action of, on metallic solutions (ALOY), A., ii, 360.

- Bismuth** selenide, action of hydrogen on (PÉLALBON), A., ii, 253.
 sulphates (ALLAN), A., ii, 401.
- Bismuth organic compounds:**—
 compounds from organic acids (PRUNIER), A., i, 76.
 chloride, compounds of, with anilines (VANINO and HAUSER), A., i, 308.
 iodide, compounds of, with pyridine and quinoline (VANINO and HAUSER), A., i, 308.
 thiocyanate, double salts of, with potassium thiocyanate (VANINO and HAUSER), A., i, 14.
- Bismuth, detection, estimation, and separation of:**—
 assay of (WARWICK and KYLE), A., ii, 231.
 electrolytic estimation of (BRUNCK), A., ii, 478.
 separation of, from tellurium (GUTBIER), A., ii, 558.
- Bismuthigalic acid** (THIBAULT), A., i, 101.
- Bismuthogallic acid** (THIBAULT), A., i, 290.
- Bisnaphthalonyl, and tetrinitro-** (RUHEMANN), T., 423; P., 1902, 46.
- Bis-2:4-dinitrobenzylidenebenzidine** (SACHS and KEMPF), A., i, 682.
- Bisnitrosyl** compounds and nitroso-compounds, connection between (PILOTY), A., i, 734.
- Bisnitrosylbenzyl**, reactions of, and by-products obtained in its preparation (BEHRENS and BEHREND), A., i, 752.
- Bistetramethylene-sulphone and sulphide** (WEIGERT), A., i, 11.
- Bistoluene-p-sulphon-o-, -m-, and -p-phenylenediamides**, and the bis-o-nitro-derivatives of the o- and p-compounds (REVERDIN and CRÉPIEUX), A., i, 238.
- "**Bitter-spars**" (EISENHUTH), A., ii, 330.
- Bleaching powder**, constitution of (v. TIESENHOLT), A., ii, 562; (DITZ), A., ii, 636.
- Blödite (astracanite)**, tension of the water of crystallisation of (VAN'T HOFF and O'FARRELLY), A., ii, 461.
- Blood**, viscosity of the (BURTON-OPITZ), A., ii, 410.
 influence of altitude on the (ABDERHALDEN), A., ii, 619, 671.
 human, bactericidal effects of (WRIGHT and WINDSOR), A., ii, 672.
 lipolytic function of the (DOYON and MOREL), A., ii, 411.
 disappearance of ethers in, *in vitro* (DOYON and MOREL), A., ii, 571.
- Blood**, disappearance of ethers normally existing in the (DOYON and MOREL), A., ii, 672.
 condition of, in chronic arsenical poisoning (MUIR), A., ii, 37.
 action of lecithin on the formed elements of the (STASSANO and BILLON), A., ii, 411.
 carbon monoxide in (NICLOUX), A., ii, 215.
 influence of amyl nitrite and carbon monoxide on the amount of carbon dioxide in (SAIKI and WAKAYAMA), A., ii, 161.
 gases in, at different altitudes during a balloon ascent (TISSOT and HALLION), A., ii, 150.
 glycerol and lipase in the (DOYON and MOREL ; HANRIOT), A., ii, 672.
 non-existence of lipase in (DOYON and MOREL ; HANRIOT), A., ii, 571.
 hydrogenases of the (POZZI-ESCOL), A., i, 654.
 variation of the amount of iodine in (GEY and BOURCET), A., ii, 619.
 sugars of the, and glycolysis (LÉPINE and BOULUD), A., ii, 151.
 glycolysis in drawn (PAVY and SIAU), A., ii, 215.
 of animals and persons poisoned by phenylhydrazine, green colouring matter from the (LEWIN), A., i, 67; ii, 160.
 of aquatic animals, molecular concentration of the (FREDERICQ), A., ii, 94.
 of marine animals, coagulation of (BOTTAZZI), A., ii, 410.
 of crayfish, osmotic pressure of the (FREDERICQ), A., ii, 151.
 of dogs, glycuronic acid in the (LÉPINE and BOULUD), A., ii, 619.
 of dogs and rabbits, action of viper venom on the (PHISALIX), A., ii, 672.
 of fishes, coagulation of the (RODIER), A., ii, 215.
 of geese, ammonia and lactic acid in the (KOWALEWSKI and SALASKIN), A., ii, 619.
 of the Hippocampus (SABRAZÈS and MURATET), A., ii, 215.
 of newly born infants, iron in the (NICLOUX and VAN VYVE), A., ii, 618.
 analysis of, in relation to metabolism (ASCOLI), A., ii, 33.
 forensic detection of (ZIEMKE), A., ii, 296.
 estimation of the alkalinity of the (A. and L. LUMIÈRE and BARBIER), A., i, 116.

- Blood**, estimation of oxygen and carbon dioxide in (BARCROFT and HALDANE), A., ii, 424.
 estimation of sugars in (LÉPINE and BOULLUD), A., ii, 434.
- Blood-clotting** and autolysis (CONRADI), A., ii, 35.
- Blood colouring matters**, detection of, in urine (ROSSEL), A., ii, 296.
- Blood constituents**, effects of intravascular injection of hypertonic salt solutions on (VAN LEER), A., ii, 411.
- Blood corpuscles** and the spleen (NOËL-PATON), A., ii, 410.
 red, colour reactions of, in diabetes (LE GOFF), A., ii, 544.
- Blood-platelets** (KEMP and STANLEY), A., ii, 271.
 number of, at high altitudes (KEMP), A., ii, 271.
- Blood or red rain**. See Water.
- Blood serum**, electrical resistance, index of refraction, and rotatory power of (DONGIER and LESAGE), A., ii, 411.
- Blood spots**, use of serum precipitates for the detection of, in forensic medicine (OGIER and HERSCHER), A., ii, 635.
- Body-juices**, human, levulose in (NEUBERG and STRAUSS), A., ii, 676.
- Boiler water**, removal of calcium sulphate from, by barium aluminate (ARTH), A., ii, 399.
- Boiling point** of benzene, molecular rise of, at different temperatures (INNES), T., 683; P., 1902, 26.
 of cadmium, selenium, and zinc (BERTHELOT), A., ii, 378.
 of liquids from observed to normal pressure, correction of the (YOUNG), T., 777; P., 1902, 108.
 of mixed liquids (YOUNG and FORTEY), P., 1902, 216; (YOUNG), P., 1902, 218.
 and vapour pressures of mixed liquids (YOUNG), T., 768; P., 1902, 107.
 determination of (CARVETH), A., ii, 600.
 of solutions, simple form of Landsberger's apparatus for determining the (LUDLAM), T., 1193; P., 1902, 180.
- Boiling point curve** and vapour composition (EBERSOLE), A., ii, 196.
 of the system, hydrazine + water (DE BRUYN and DITO), A., ii, 644.
- Boletol** (BERTRAND), A., ii, 166.
 extraction of (BERTRAND), A., i, 220.
- Bone**, influence of lecithin on the development of (DESGREZ and ZAKY), A., ii, 465.
- Bone**, albumoid of (HAWK and GIES), A., i, 408; ii, 518.
 amount of fluorine in (JODLBAUER and BRANDL), A., ii, 34.
- Bone meal phosphoric acid**. See Agricultural Chemistry.
- Borax**. See Sodium bborate.
- Boric acid**. See under Boron.
- Borneol**, magnetic rotation and refraction of (PERKIN), T., 309; P., 1902, 29.
- l*-**Borneol** from the oil of *Asarum canadense* (POWER and LEES), T., 63; P., 1901, 210.
 esters of, variation in the rotatory power of (MINGUIN and DE BOLLEMONT), A., i, 383.
- Borneolets**, and their acyl derivatives, crystallography of (MINGUIN), A., i, 684.
- Borneooglucuronic acid** (FROMM and CLEMENS), A., i, 341; (BONANNI), A., ii, 160.
- Bornite** as a furnace product (WINSCHELL), A., ii, 146.
- iso***Bornyl chloride**, formula of (SEMMLER), A., i, 385.
- Bornylxanthamides**, *d*-, *l*-, and 2-(TSCHUGAEFF), A., i, 630.
- Boron**, supposed conversion of, into silica (FITTICA; COUNCLER), A., ii, 70.
- Borides**, metallic, new (TUCKER and MOODY), T., 14; P., 1901, 129.
- Boron nitride** (MOESER and EIDMANN), A., ii, 206.
- Boric acid**, occurrence of, in fruits grown in southern climes (V. LIPPmann), A., ii, 523.
 supposed reduction of, to silicic acid (FITTICA; COUNCLER), A., ii, 70.
 influence of, on the rotation of lactic acid and its potassium salt (HENDERSON and PRENTICE), T., 662; P., 1902, 88.
 physiological action of (ROST; RUBNER; NEUMANN; HEFFTER; POLENSKE), A., ii, 620.
 excretion of, in man (SONNTAG), A., ii, 678.
 estimation of (FARNSTEINER), A., ii, 225; (HEBEBRAND), A., ii, 354; (JONES), A., ii, 630.
 estimation of, gravimetrically (PARTHEIL and ROSE), A., ii, 48.
 estimation of, spectroscopically (MURARO), A., ii, 355.
 rapid estimation of, in butter (RICHMOND and HARRISON), A., ii, 530.
 estimation of, in margarine (BEYTHIEN), A., ii, 696.
- Perboric acid**, derivatives of (PETRENKO), A., ii, 317.

Boron:—

Borotungstic acid, salts, density, refractive and dispersive powers of solutions of (KAHLBAUM, ROTH, and SIEDLER), A., ii, 260.

Brain, new proteid from the (ULPIANI and LELLI), A., ii, 573.

cerebrin, cephalin, and lecithin from (KOCH), A., ii, 676.
horse's, educts from (BETHE), A., ii, 676.

Brandy, artificial, choline as a criterion for (STRUVE), A., ii, 636.

residues. See Agricultural Chemistry.

Brazilein, preparation of, and action of hydroxylamine on (SCHALL), A., i, 636.

constitution of (BOLLINA, V. KOSTANECKI, and TAMBOE), A., i, 482.
and its triacetyl derivative, hydrochloride and sulphate (HERZIG and POLLAK), A., i, 483.

Brazilic acid and its salts, oxime, and semicarbazone (PERKIN), T., 226; P., 1899, 28; 1900, 106; 1901, 258.

Brazilin (v. KOSTANECKI and LAMPE), A., i, 481; (BOLLINA, V. KOSTANECKI, and TAMBOE), A., i, 482; (HERZIG and POLLAK), A., i, 482; (v. KOSTANECKI and PAUL), A., i, 686.
constitution of (PERKIN), T., 221, 1008, 1057; (GILBODY and PERKIN), T., 1040; P., 1899, 27, 75, 241; 1900, 107; 1901, 257; 1902, 147.
degradation of (PERKIN), P., 1902, 147; A., i, 815; (v. KOSTANECKI and PAUL), A., i, 686.

Brazilinic acid and its salts, methyl ester, phenylhydrazone, hydrate and tetrabromo-derivative (PERKIN), T., 1030.

Bread, transformation of new, into old (LINDET), A., i, 427.
decomposition of, by micro-organisms (KÖNIG, SPIEKERMANN, and TILLMANS), A., ii, 686.
estimation of fat in (BERNTROP), A., ii, 366.

Brewers' grains. See Agricultural Chemistry.

Brewing materials, detection and estimation of small quantities of arsenic in (REPORT OF JOINT COMMITTEE), A., ii, 288.

Bright's disease, nitrogenous metabolism in a case of (BUTLER and FRENCH), A., ii, 466.

Bromal campholates, crystallography of (MINGUIN), A., i, 685.
glycolate and **Bromalglycol** acetate (GABUTTI), A., i, 261.

Bromalchloralcarbamide (KALLE & CO.), A., i, 429.

Bromination and nitration in the aromatic series (BLANKSMA), A., i, 600.

Bromine, velocity of reaction of, on ethyl alcohol (BUGARSZKY), A., ii, 9.
behaviour of, to high pressure electric discharges (KELLNER), A., ii, 649.
action of, on metallic silver in the light and in the dark (v. CORDIER), A., ii, 18.

substitution of, by chlorine, in the organism (HONDO), A., ii, 464.

Bromine compounds with aluminium bromide and carbon disulphide (PLOTNIKOFF), A., ii, 21.

Hydrobromic acid (*hydrogen bromide*), action of Caro's reagent on (WEDEKIND), A., ii, 498.

Hypobromites and hypochlorites, stability of (GRAEBE), A., ii, 556.

Bromine and iodine, detection of, in presence of thiosulphates (LEUBA), A., ii, 691.

Bromoform, electrolytic preparation of (COUGHLIN), A., i, 197.

Brucidine (TAFEL and NAUMANN), A., i, 53.

Brucine, supposed reaction of, with nitrous and nitric acids (LUNGE), A., ii, 288, 427; (WINKLER), A., ii, 353.

electrolytic reduction of (TAFEL and NAUMANN), A., i, 53.

estimation of, in nux vomica (DOWZARD), P., 1902, 220.

separation of, from strychnine (LYONS), A., ii, 710.

Brunsvigite from Radauthal (FROMME), A., ii, 512.

Bryoidin (TSCHIRCH and CREMER), A., i, 812.

Bufonin, **Bufothalin**, and **Bufothenin** (PHISALIX and BERTRAND; BERTRAND), A., ii, 576.

Bufonin and its chloride and **Bufothalin**, and their physiological action (FAUST), A., i, 446.

Bullocks. See Agricultural Chemistry.

n-Butaldehyde, condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 820.

isoButaldehyde, condensation of, with cinnamaldehyde (MICHEL and SPITZAUER), A., i, 292.

chloro-, and its oxime (IPATIEFF and SOLONINA), A., i, 2.

Butane, β -bromo- β -nitroso-, constitution of (PILOTY and STOCK), A., i, 735.

$\alpha\alpha'$ -dicyano-. See Adiponitrile.

isoButane, β -thiocyanato- (WHEELER and JOHNSON), A., i, 760.

Butanedicarboxylic acids. See :—

Adipic acids.

Dimethylsuccinic acid.

Butanepentacarboxylic acid, ethyl ester (GUTHZEIT and JAHN), A., i, 659; (GUTHZEIT and ENGELMANN), A., i, 743.

*iso***Butanesulphonic chloride**, amide, and anilide (DUGUET), A., i, 428.

Butane- $\alpha\beta$ -tri- and - $\alpha\beta\delta$ -tetra-carboxylic acids, ethyl esters (GUTHZEIT and ENGELMANN), A., i, 742.

Butanetricarboxylic acids. See also α -Methyltricarballylic acids.

Butanolamines. See Butyl alcohols, amino-.

Butenelactone (FICHTER and SONNENBORN), A., i, 256.

Butenylmesitylene and its nitrosochloride (KLAGES), A., i, 613.

Butenylphenetole (KLAGES), A., i, 610.

p-**Butenyl-m-xylene** and its nitrosochloride (KLAGES), A., i, 612.

*4-iso***Butoxy-1- α -hydroxypropylbenzene** and its phenylurethane (KLAGES), A., i, 610.

Butter, rancidity of (JENSEN), A., ii, 468.

analysis of (KICKTON), A., ii, 586.

analysis of, and the relation between

the various constants of the same (BEHREND and WOLFS), A., ii, 708.

detection of fluorides in (O. and C. W. HEHNER), A., ii, 529.

detection of margarine in (ANNATÖ), A., ii, 113; (BREMER), A., ii, 113, 114; (REINSCH), A., ii, 114; SOLTZIEN, A., ii, 183.

detection of sesamé oil in (ANNATÖ; SOLTZIEN), A., ii, 113; (BREMER), A., ii, 113, 114; (REINSCH; RANWEZ), A., ii, 114.

estimation of the soluble acids in (VANDAM), A., ii, 541.

rapid estimation of boric acid in (RICHMOND and HARRISON), A., ii, 530.

estimation of the unsaponifiable substances in the fat of (KIRSTEN), A., ii, 708.

See also Agricultural Chemistry.

"**Butter oil**" (UTZ), A., ii, 366.

Butyl alcohol, β -amino- (STIÉNON), A., i, 265.

n-**Butyl alcohol** in fusel oil from grain (EMMERLING), A., i, 253.

action of, on its sodium derivative (GUERBET), A., i, 180.

*iso***Butyl alcohol**, properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTHEY), T., 748; P., 1902, 105.

*iso***Butyl alcohol**, properties of mixtures of, with water (YOUNG and FORTHEY), T., 732; P., 1902, 105.

sec.**Butyl alcohol** and its derivatives (NORRIS and GREEN), A., i, 4.

α -amino-, and its dibenzoyl and thiocarbamide derivatives, and oxalate and picrate (TORDOIR), A., i, 265.

tert.**Butyl alcohol**, properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTHEY), T., 746; P., 1902, 105.

properties of mixtures of, with water (YOUNG and FORTHEY), T., 729; P., 1902, 105.

tert.**Butyl alcohol**, trichloro- (GUÉDRAS), A., i, 131.

α -*iso***Butyl- β -isoamylacetic acid.** See Undecoinoic acid.

*iso***Butylbenzene**, *p*-iodo- (KLAGES and STORP), A., i, 670.

tert.**Butylbenzene**, *p*-iodo-, containing polyvalent iodine, and its derivatives and salts (WILLGERODT and RAMPACHER), A., i, 18.

ψ .**Butylene chlorohydrin** (KRASSUSKY), A., i, 425.

*iso***Butylene chlorohydrin**, structure of (KRASSUSKY), A., i, 8.

nitrosate and its cyanide (IPATIEFF and SOLONINA), A., i, 2.

Butenepentacarboxylic acid, ethyl ester (GUTHZEIT and JAHN), A., i, 659; (GUTHZEIT and ENGELMANN), A., i, 743.

Butylenetricarboxylic acid (GUTHZEIT and ENGELMANN), A., i, 743.

α .**Butylene- $\alpha\gamma\delta$ -tri-, - $\alpha\gamma\gamma\delta$ -tetra- and - $\alpha\gamma\gamma\delta\delta$ -hexa-carboxylic acids**, ethyl esters (GUTHZEIT and ENGELMANN), A., i, 742.

Butylenetetracarboxylic acid. See also Methylcarboxyacונית acid.

Butyl- ψ -nitrole, constitution of (PILOTY and STOCK), A., i, 735.

tert.**Butylphenylarsenic compounds** (MICHAELIS and TRAEGLER), A., i, 416.

α -*iso***Butyl- β -isopropylbutyric acid.** See Undecoinoic acid.

α -*iso***Butyl- β -isopropylbutyrolactone** (NEF), A., i, 6.

α -*iso***Butyl- β -isopropyl- γ -hydroxybutyric acid.** See γ -Hydroxyundecoinoic acid.

α -*iso***Butyl- β -isopropyltrimethylene glycol.** See $\alpha\gamma$ -Decylene glycol.

*3-iso***Butylpyrazolone** (BONGERT), A., i, 73.

*iso***Butylpyruvic acid**, ethyl ester, and its oxime (BOUVEAULT and LOCQUIN), A., i, 704.

Butyracetal, β -chloro- (WOHL and FRANK), A., i, 532.

- isoButyramide**, α -amino-, hydrobromide (SCHIFF), A., i, 250.
- Butyranilide**, β -chloro- (MICHAEL, GRAVES, and GARNER), A., i, 70.
 α -thio- (BECKURTS and FREICHIS), A., i, 765.
- isoButyranilide**, α - and β -chloro- (MICHAEL, GRAVES, and GARNER), A., i, 70.
- Butyric acid**, condensation product of (ALBO), A., i, 10, 200.
 chloromethyl and methylene esters (DESCUDÉ), A., i, 738.
- Butyric acid**, halogen derivatives of (CLOVER), A., i, 200.
 $\beta\gamma$ -dibromo- (FICHTER and SONNENBORN), A., i, 256.
- isoButyric acid**, isobornyl ester (KONDA-KOFF), A., i, 478.
 chloromethyl and methylene esters (DESCUDÉ), A., i, 738.
- isopropyl ester**, vapour pressures and specific volumes of (YOUNG and FORTNEY), T., 783; P., 1902, 108.
- Butyric chloride**, $\alpha\gamma$ -dichloro- (MICHAEL, GRAVES, and GARNER), A., i, 69.
- Butyric fermentation**. See Fermentation.
- Butyrylacetoacetic acid**, isomeric esters and copper salt (BONGERT), A., i, 73.
- Butyrylbutyric acid**, amyl ester (MOUREU and DELANGE), A., i, 164.
- isoButyryl-*o*-flavaniline** (CAMP), A., i, 178.
- Butyrylmesitylene** (KLAGES), A., i, 613.
- 3-isoButyryl-1-methylcyclopentanone-4**, and its methyl derivative (LESEK), A., i, 262.
- Butyrylphenetole** (KLAGES), A., i, 610.
- Butyrylphenylacetylene** (MOUREU and DELANGE), A., i, 164.
- Butyrylpyruvic acids**, *n*- and *iso*-, ethyl esters and salts (LAPWORTH and HANN), T., 1485; P., 1902, 141.
- Bytownite** from Monhegan Island, Maine (LORD), A., ii, 463.
- C.
- Cachou**, tincture of, detection of (BOURQUELOT), A., ii, 483.
- Cacodylic acid** and its salts and compounds (SIBONI), A., i, 432.
 excretion of, and its detection in cases of poisoning (VITALI), A., ii, 161.
- Cadinene** (CATHELINÉAU and HAUSSER), A., i, 44.
- Cadmium**, boiling point of (BERTHELOT), A., ii, 378.
- Cadmium alloys** with barium and calcium (GAUTIER), A., ii, 397.
- Cadmium alloys** with magnesium (BOUDOUARD), A., ii, 501.
 with strontium (GAUTIER), A., ii, 138.
- Cadmium salts**, compounds of, with cupric oxide (MAILHÉ), A., ii, 140, 262.
 compounds of, with hydroxylamine (ADAMS), A., ii, 655.
- Cadmium** bromide and chloride, precipitation of, by sulphuric acid (VIARD), A., ii, 606.
 suboxides (TANATAR and LEVIN), A., ii, 658.
- ammonium phosphate, estimation of, volumetrically (DAKIN), A., ii, 628.
 sulphate, compounds of, with hydrogen chloride (BASKERVILLE and HARRIS), A., ii, 209.
- Cadmium organic compounds**:—
 potassium ferrocyanides (MILLER), A., i, 429.
 thiocyanate and its compounds with ammonia, ammonium, barium, potassium, rubidium, and sodium (GROSSMANN), A., i, 663.
- Cadmium**, estimation of (MILLER and PAGE), A., ii, 49; (DAKIN), A., ii, 628.
- Cæsium**, potassium, and rubidium, spectra of (RAMAGE), A., ii, 637.
- Cæsium** ruthenichlorides and oxyruthenichlorides (HOWE), A., ii, 86.
 phosphates (v. BERG), A., ii, 137.
 hydrogen selenate and tellurate (NORRIS and KINGMAN), A., ii, 15.
- thallic sulphates (LOCKE), A., ii, 397.
 vanadate (CHABRIÉ), A., ii, 561.
- Cæsium**, estimation of, as the hydrogen sulphate (BROWNING), A., ii, 175.
- Caffeine**, crystallisation of (KLEY), A., ii, 115.
- “**Caffeine iodide**” (FAUCON), A., i, 485.
- Caffetannic acid** in coffee beans (GRAF), A., ii, 40.
- Calamene** and its bromo-derivative and hydrochloride, and **Calameonic acid** and its salts (THOMS and BECKSTROEM), A., i, 810.
- Calameon** and its sodium derivative and hydrochloride (THOMS and BECKSTROEM), A., i, 809, 810.
- Calamus oil** (THOMS and BECKSTROEM), A., i, 809, 810.
- Calaverite** from Cripple Creek, Colorado (PENFIELD and FORD), A., ii, 28.
 from Western Australia (HOLROYD; SIMPSON), A., ii, 509.
 crystalline development of (SMITH and PRIOR), A., ii, 404.
- See also Tellurides.
- Calcite crystals** from Gränsberg, Sweden (WEIBULL), A., ii, 405.

- Calcium**, atomic weight of (HINRICHSEN), A., ii, 137, 501; (RICHARDS), A., ii, 394.
 in the dog (ALOV), A., ii, 618.
 metabolism of, in *Herbivora* (TANGL), A., ii, 272.
- Calcium alloys** with cadmium (GAUTIER), A., ii, 397.
- Calcium compounds.** See Agricultural Chemistry.
- Calcium salts**, thermochemical action of ammoniacal cupric oxide on (BOUZAT), A., ii, 550.
- Calcium carbide**, formation of (ROTHMUND), A., ii, 454.
 reactions in the formation of (GIN), A., ii, 605.
 new reactions of (SANDMAN), A., i, 581.
 apparatus for the analysis of (FORTENTI), A., ii, 583.
 See also Agricultural Chemistry.
- carbonate**, solubility of, in aqueous solutions of certain electrolytes in equilibrium with atmospheric air (CAMERON and SEIDELL), A., ii, 320.
- haloids**, temperature of maximum density and electrical conductivity of solutions of (DE COPPET and MULLER), A., ii, 488.
- chloride**, compound of, with iodine trichloride (WEINLAND and SCHLEGELMILCH), A., ii, 315.
- tetraiodide** (MEYER), A., ii, 319.
- hydride and nitride**, formation and stability of (GAUTIER), A., ii, 453.
- nitrate**, spectrum of (HARTLEY), T., 569; P., 1902, 68.
- oxide (*Lime*)**, properties of fused (MOISSAN), A., ii, 257.
 amount of, in phanerogamic parasites (Asō), A., ii, 684.
 estimation of free and anhydrous, in cements (MAYNARD), A., ii, 697.
 See also Agricultural Chemistry.
- phosphate**. See Agricultural Chemistry.
- ammonium phosphate** (LASNE), A., ii, 320.
- carbophosphate** (BARILLÉ), A., ii, 258.
- hydrogen phosphate**, solubility of, in water (RINDELL), A., ii, 208.
- hypophosphite**, behaviour of, in the organism (MASSOL and GAMEL), A., ii, 37; (PANZER), A., ii, 225.
- silicide**, CaSi₂ (MOISSAN and DILTHEY), A., ii, 320.
- sulphate**, removal of, from boiler water, by barium aluminate (ARTH), A., ii, 399.
 See also Gypsum.

LXXXII. ii.

Calcium, estimation of:

- estimation of, as oxalate (PAGIREFF; TÄUBNER), A., ii, 356.
 estimation of, in water (GRITTLER), A., ii, 696.

Calcium-ammonium, decomposition of, by ammonium chloride and action of hydrogen sulphide on (MOISSAN), A., ii, 72.

Calculi, biliary, composition of (FUNARO), A., ii, 276.
 intestinal (PATEIN and BROUANT), A., ii, 519.

Caledomite from Chili (BERG), A., ii, 331.

Calorific value of fuels, determination of the (ANTONY and DI NOLA), A., ii, 4.

Calorimeter, peroxide (PARR), A., ii, 432.

Camphane, 1:1-bromonitro-, action of phenylhydrazine on (FORSTER), T., 870; P., 1902, 116.
 comparison of, with bromonitroc�크ampfer (FORSTER), T., 865; P., 1902, 116.

Camphanylcarbinol (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 478.

Camphenaldehyde (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 102.

Camphene, constitution of (KONDAKOFF), A., i, 478; (DODGE), A., i, 807.
 magnetic rotation of (PERKIN), T., 316; P., 1902, 29.
 action of mercuric acetate on (BALBIANO, PAOLINI, and LUZZI), A., i, 809.

Camphene, bromo- and chloro-, dibromide and dichloride, formulae of (SEMLLER), A., i, 385.

Camphenolglyconic acid (FROMM and HILDEBRANDT), A., ii, 159.

Camphenylcarbinol. See Dehydrocamphylcarbinol.

Camphidine and **Camphidone** (BOEHRINGEN & SÖHNE), A., i, 385.

Camphidine and α - and β -**Camphidones** and their derivatives (TAFEL and ECKSTEIN), A., i, 43.

Campholenic acid and nitro-, constitution of (BÉHAL), A., i, 419.

α -**Campholenic acid** (FORSTER), T., 271; P., 1902, 26.

Campholenactone (BÉHAL), A., i, 419.

i - α -**Campholytic acid** (NOYES and PATTERSON), A., i, 590.

Camphonie acid, constitution, reduction, and degradation of (LAPWORTH and LENTON), T., 18; P., 1901, 148.

Camphononic acid, constitution of (LAPWORTH and LENTON), T., 18; P., 1901, 148.

- Camphor** and its derivatives, magnetic rotation and refraction of (PERKIN), T., 292; P., 1902, 28.
optical inversion of, and the mechanism of hetero- and meso-sulphonation, of homo- and hetero-bromination and dehydration of (ARMSTRONG and LOWRY), T., 1469.
migration of the methyl group in the molecule of (BLAISE and BLANC), A., i, 299.
sulphonation of (ARMSTRONG and LOWRY), T., 1441, 1462, 1469; P., 1901, 183, 217, 244.
sodium, action of cyanogen chloride on (DUVAL), A., i, 106.
in the organism (FROMM and HILDEBRANDT), A., ii, 159; (FROMM and CLEMENS), A., ii, 341.
- Camphor, β -bromo-** (FORSTER), P., 1901, 245.
 β -bromo- and β -chloro-, and their oximes and benzoyl derivatives (FORSTER), T., 269; P., 1902, 26.
 β -bromo-, $\alpha\alpha'\beta$ -tribromo-, and $\alpha\beta$ -dibromo- α' -nitro- (ARMSTRONG and LOWRY), T., 1464; P., 1901, 217, 244.
 α -dibromo-, constitution of the acids from (LAPWORTH and LENTON), T., 17; P., 1901, 148.
 $\alpha\alpha'$ -bromonitro-, action of alcoholic silver nitrate, and of phenylhydrazine on (FORSTER), T., 867; P., 1902, 116.
comparison of, with bromonitrocumpane (FORSTER), T., 865; P., 1902, 116.
- β-chloro- α -bromo-** (FORSTER), T., 273; P., 1902, 26.
- isomitoso*, isomeric benzoyl derivatives from (FORSTER), P., 1902, 238.
- iso***Camphor**, constitution of, and its amine and carbamide (SPICA), A., i, 43.
- β -Camphoramidic acid** (NOYES and PATTERSON), A., i, 590.
- β -Camphoranic acid** (β -hydroxycamphoronic acid), constitution of (LAPWORTH and LENTON), T., 21; P., 1901, 148.
- Camphor compounds**, enantiomorphism of (MINGUIN), A., i, 798.
- Camphorenic acid**, bromo-, constitution of (LAPWORTH and LENTON), T., 18; P., 1901, 148.
- Camphoric acid**, constitution of (NOYES and PATTERSON), A., i, 590.
conductivity of esters of (WEGSCHEIDER), A., i, 618.
- Camphoric acid**, β -bromo-, and its methyl ester and anhydride (ARMSTRONG and LOWRY), T., 1467; P., 1901, 217, 244.
- Camphorimide**, electrolytic reduction of (TAFEL and ECKSTEIN), A., i, 43.
- Camphoronic acid**, bromination of (LAPWORTH and LENTON), T., 25.
- iso***Camphoronic acid** (ARMSTRONG and LOWRY), T., 1468.
synthesis of (PERKIN), T., 246; P., 1900, 214.
- Camphoroxime**, α -amino-, and its salts, dibenzoyl and benzylidene derivatives, and carbamides (LAPWORTH and HARVEY), T., 549; P., 1902, 70.
- Camphoroximephenylcarbamate**, phenylcarbamide of (LAPWORTH and HARVEY), T., 554; P., 1902, 71.
- Camphorophorone**, formula of (SEMMLER), A., i, 385.
- Camphorquinonephénylhydrazone** (FORSTER), T., 869.
mutarotation and desmotropic forms of (LAPWORTH and HANN), T., 1508; P., 1902, 143, 146.
- Camphor ring**, attempted synthesis of the (ZELINSKY), A., i, 106.
- Camphorsulphonanhydramide** and its bromo- and chloro-derivatives (ARMSTRONG and LOWRY), T., 1448; P., 1901, 183.
- Camphorsulphonic acid** (Reychler), constitution of (ARMSTRONG and LOWRY), T., 1469.
bromide, chloride, amide, anhydramide, anilide, *p*-bromoanilide, and piperidides (ARMSTRONG and LOWRY), T., 1447; P., 1901, 182.
- Camphorsulphonlic acid**, α -bromo- and α -chloro-, and their salts, bromides, chlorides, and amides, and anilide and piperidine of the bromo-acid (ARMSTRONG and LOWRY), T., 1451; P., 1901, 182.
- Camphyl glycols** (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 299.
- Canadine**, relation of, to berberine (GADAMER), A., i, 173.
- Canarin** (GOLDBERG), A., i, 137.
- Cane sugar**. See Sucrose.
- Caoutchouc** (*indiarubber*) (WEBER), A., i, 552.
chemistry of (HARRIES), A., i, 811.
crude, action of, strong nitric acid on (DITTMAR), A., i, 386; (HARRIES), A., i, 812.
- Capillary**, electrical. See Electrocapillary.
- Capillary constants** of sugar solutions (DÉMICHEL), A., ii, 703.
- Carbamide**, preparation of, by the oxidation of albumin (JOLLES), A., i, 331.
formation of, from nitrogenous substances (PIOT), A., i, 138.

- Carbamide**, formation of, by the oxidation of physiological nitrogenous substances (JOLLES), A., i, 86; (FALTA), A., i, 282.
 new properties of (RAMSDEN), A., i, 596.
 and its derivatives, crystallography of (MEZ), A., i, 86.
 influence of, on the vapour pressure of aqueous ammonia solution (PERMAN), T., 484; P., 1901, 261.
 action of, on pyruvic acid (SIMON), A., i, 15.
 derivatives of sugars (SCHOORL), A., i, 83.
 See also Urea.
- Carbamide, thio-**. See Thiocarbamide.
- α -Carbaminethio-butyranylilide**, -glycoll-methylanilide, and -lactanilide (BECKUITS and FREIBICH), A., i, 764.
- Carbaminoglycylglycine** ethyl ester (FISCHER), A., i, 350.
- Carbanilide**. See Diphenylcarbanide.
- Carbanilophenylazocetaldioxime**, constitution of (VOSWINCKEL), A., i, 844.
- Carbazole, dinitro-** (WIRTH), A., i, 495.
- Carbethoxyphenylglycinecarboxylic acid**, diethyl ester (VORLÄNDER, MUMME, and WANGERIN), A., i, 454.
- $\alpha\alpha$ -Carbethoxyphenylsemicarbazide** (WHEELER and BEARDSLEY), A., i, 503.
- Carbimides, thio-**. See Thiocarbimides.
- Carbindigo**, preparation and formula of, and **Carbindirubin** (GABRIEL and COLMAN), A., i, 643.
- Carbohydrates**, synthesis of (WALTHER), A., i, 203, 747.
 formed in the fermentation of sucrose by a mucus-forming bacillus (SCHAR-DINGER), A., ii, 469.
 magnetic rotation of some (PERKIN), T., 177; P., 1901, 256.
 drying of, and estimation of their water of crystallisation (SCHULZE), A., ii, 292.
 acetylated, velocity of hydrolysis of (KREIMANN), A., i, 712.
 action of hydrogen peroxide on, in presence of ferrous sulphate (MORRELL and CROFTS), T., 666; P., 1902, 55.
 decomposition of, by enzymes (CLEMM), A., i, 348.
 decomposition of, in germinating dates (GRÜSS), A., ii, 522.
 formation of higher fatty acids from (MAGNUS-LEVY), A., ii, 614.
 influence of, on protein metabolism (TALLQVIST), A., ii, 273.
 absorption of, by the rectum (REACH), A., ii, 413.
- Carbohydrates, rôle of**, in the utilisation of insoluble salts by the organism (VAUDIN), A., ii, 337.
 changes in the, in Ascaris (WEINLAND), A., ii, 155.
 reserve, of the seeds of *Aucuba japonica* (CHAMPENOIS), A., ii, 166.
 of the protein of seeds of Liliaceæ (DUBAT), A., ii, 99.
 in the seeds of *Phellandrium aquaticum* (CHAMPENOIS), A., ii, 282.
 of crystallised serum-albumin (LANGSTEIN), A., i, 66.
 estimation of, in normal urine by the Schotten-Baumann method of benzoylation (REINBOLD), A., ii, 633.
 See also Sugars.
- Carbohydrates**. See also :—
 α -Amylodextrin.
 Apiose.
 Arabin.
 Arabinooses.
 Arabinol.
 Cellulose (*celllose*).
 Cellulose.
 Dextrans.
 Dextrose.
 Erythritol.
 β -Ethylgalactoside.
 Fructose.
 δ -Galactan.
 Galactose.
 Galactosidodextrose.
 Galactosidogalactose.
 Gelose.
 Gentibiose.
 α -Glucohexitose.
 Glucose.
 Glucosidegalactose.
 Glucosone.
 Glycogen.
 Granulose.
 Hemicelluloses.
 Honey dextrin.
 β -Hydroxymethylerythrose (*apiose*).
 Ketoses.
 Lactose.
*iso*Lactose.
 Levulose.
 Maltose.
 Mannan.
 Manneotetrose.
 Manninotriose.
 Mannitol.
 Mannose.
 Melibiose.
 Methylpentosan.
 Methyltetrose.
 Methyltriose.
 Oxycelluloses.
 Pentaerythritol.
 Pentanetriolone.

Carbohydrates. See :—

Pentosans.
Pentoses.
Potato-starch (*granulose*).
Raffinose.
Rhamnitol.
Rhamnose.
Starch.
Stachyose.
Sucrose.
Xylan.
Xylose.

Carbon, tervalent (GOMBERG), A., i, 754.
basic properties of (KEHRMANN and WENTZEL), A., i, 89; (WALDEN), A., i, 536.

effect of the presence of hydrogen on the spectrum of (HERBERT), A., ii, 637.

atoms, linking of, in the paraffin series (LOSANITSCH), A., i, 253.

double linking of, and the carbonyl radicle (VORLÄNDER), A., i, 309.

ions (BILLITZER), A., ii, 593.

fusion of (LUDWIG), A., ii, 451.

direct combination of, with chlorine (v. BOLTON), A., ii, 393; (LORENZ), A., ii, 452.

gas, conversion of, into diamond (LUDWIG), A., ii, 70, 451.

Carbon tetrachloride, condensation of, with ethyl cyanoacetate and with ethyl malonate (DIMROTH), A., i, 740.

Carbides. See under the various metals.

Carbon mono- and di-oxides, action of hydrogen on, in presence of finely-divided metals (SABATIER and SENDERENS), A., i, 333; ii, 317.

Carbon monoxide (*carbonic oxide*), variation with temperature of the density and surface energy of, and vapour pressure of (BALY and DONNAN), T., 907; P., 1902, 115.

hydrogen, and isopentane, fractional combustion of (CHARITSCHKOFF), A., ii, 702.

combination of, with chlorine, under the influence of light (DYSON and HARDEN), P., 1902, 191.

solubility of, in binary organic mixtures (SKIRROW), A., ii, 600.

affinity of haemoglobin for (HÜFFNER), A., ii, 671.

influence of, on the synthesis of phenol-sulphuric acid in the organism (KATSUYAMA), A., ii, 161.

in the blood (NICLOUX), A., ii, 215.

influence of, on the amount of carbon dioxide in arterial blood (SAIKI and WAKAYAMA), A., ii, 161.

Carbon dioxide (*carbonic anhydride*), solid, method of collecting for lecture purposes (DARLING), A., ii, 500.

fermentative origin of (EMERSON), A., ii, 271.

state of, in aqueous solution (WALKER), P., 1902, 246.

physical peculiarity of solutions of, in liquids (WANKLYN), A., ii, 309.

thermal properties of (KUENEN and ROBSON), A., ii, 595.

compressibility of, at low pressures (BATTELLI), A., ii, 244.

auto-regulation of "energetic" functions by (DUBOIS), A., ii, 573.

action of, on barium borates (JONES), A., ii, 630.

action of, on calcium phosphates (BARILLE), A., ii, 258.

influence of, on the action of diastase (MOHR), A., i, 410.

as an excitant of the respiratory centre (RULOT and CUVELIER), A., ii, 150.

action of, on the conservatism of muscular energy (LHOTAK DE LHOTA), A., ii, 675.

influence of amyl nitrite and carbon monoxide on the amount of, in blood (SAIKI and WAKAYAMA), A., ii, 161.

elimination of, in certain metabolic disorders (HALL), A., ii, 679.

decomposition of, by isolated leaves (DEHÉRAIN and DEMOUSSY), A., ii, 624.

influence of, in the air on the form and internal structure of plants (FARMER and CHANDLER), A., ii, 683.

influence of varying amounts of, in the air on the photosynthetic process of leaves and on the mode of growth of plants (BROWN and ESCOMBE), A., ii, 682.

estimation of, in the atmosphere (LETTES and BLAKE), A., ii, 226.

estimation of, in blood (BARCROFT and HALDANE), A., ii, 424.

Carbonates and bicarbonates in aqueous solution, equilibrium between (CAMERON and BRIGGS), A., ii, 64.

action of hydrogen peroxide on (KASANEZKY), A., ii, 317, 500.

method of estimating small quantities of (HALL and RUSSELL), T., 81; P., 1901, 241.

estimation of, gasometrically (RIEGLER), A., ii, 223.

Carbon sulphide, gaseous, non-existence of (RUSSELL and SMITH), T., 1538; P., 1902, 197.

disulphide, refraction of solutions in (FORCH), A., ii, 589.

- Carbon disulphide**, compounds of, with bromine and aluminium bromide (PLOTNIKOFF), A., ii, 21.
action of, on polyhydric amino-alcohols (MAQUENNE and ROUX), A., i, 694.
- Carbon, estimation of:**—
estimation of, in presence of osmium (v. KNORRE), A., ii, 427.
estimation of, in steel (BLOUNT), A., ii, 174; (LEFFLER), A., ii, 355.
- Carbon compounds**, molecular weights of, in concentrated solutions with carbon compounds as solvents (SPEYERS), A., ii, 388.
- Carbon-iron systems**, chemical equilibrium of (CHARPY and GRENET), A., ii, 209.
- Carbonyl salts** (GOMBERG), A., i, 600.
- Carbonyl chloride**, action of metallic thiocyanates on (DIXON), P., 1902, 240.
- Carbonyl radicle** and the carbon double linking (VORLÄNDER), A., i, 309.
- Carbonyl-2:2'-diamino-diphenyl** and **-4:4'-dimethyldiphenyl** (v. NIEMEN-TOWSKI), A., i, 21.
- Carbonylchloroaldehydes** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 78.
- Carbonyldiglycylglycine**, and its ethyl esters and amide (FISCHER), A., i, 351.
- Carbonyl-8:5'-dihydroxydi- β -naphthylamine-6:7'-disulphonic acid** and thio- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 280.
- Carbonyldihydroxydinaphthylaminedisulphonic acids**, thio- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 92.
- Carbonyldileucaramine** (MÖHLAU and HEINZE), A., i, 244.
- Carbonyldi-m-nitrophenylcarbamide** (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1569.
- Carbonyldiphenylglycine**, esters (BADISCHE ANILIN- & SODA-FABRIK), A., i, 101.
- Carbonyldi-phenyl- and -o-tolyldithiocarbamides** (DIXON), P., 1902, 241.
- Carbonyldi-o-tolylcarbamide** (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1571.
- Carbonyldithiocarbamide**, additive products of (DIXON), P., 1902, 240.
- Carbonylthiocarbimido-phenyl-, phenylbenzyl-, - α -naphthyl-, and - ν -tolyl-thiocarbamides** (DIXON), P., 1902, 241.
- Carbothionium** and **Carboxonium salts** (WERNER), A., i, 50; (HEWITT), A., i, 112.
- o-Carboxyanilino- α -phenylacetic acid**, amide, and nitrile (v. WALTHER and RAETZE), A., i, 467.
- 4-Carboxybenzeneazo-1:3-diphenylpyrazolone** (BÜLOW and HAILER), A., i, 326.
- 4-Carboxybenzeneazo-3-phenyl-5-iso-oxazolone** (BÜLOW and HAILER), A., i, 326.
- Carboxydimethoxybenzoylformic acid** and its salts (PERKIN), T., 1022; (GILBODY and PERKIN), T., 1045.
- Carboxydimethoxybenzylformic acid** (PERKIN), T., 1028.
- Carboxydimethoxymandelic acid**, lactone of (PERKIN), T., 1026.
- 2-Carboxy-5:6-dimethoxyphenoxyacetic acid** and its silver salt (PERKIN and YATES), T., 241; P., 1900, 108; (PERKIN), T., 1061.
- Carboxyethylthioglycollanilide** (BECKURTS and FRERICHS), A., i, 764.
- Carboxyglutaric acid** (*propanetricarboxylic acid*), ethyl ester, action of halogen substituted esters of fatty acids on (GUTHZEIT and ENGELMANN), A., i, 742.
- Carboxyhæmoglobin**. See under Hæmoglobin.
- 2-Carboxy-5-methoxyphenoxyacetic acid** (GILBODY and PERKIN), T., 1043; P., 1902, 148.
- Carboxymethoxyphenoxylic acid** (?) (PERKIN), T., 1029; P., 1902, 148; (GILBODY and PERKIN), T., 1043.
- 3-Carboxy-2-methylfuran-4-acetic acid**, salts and esters (FEIST), A., i, 489.
- m-Carboxyphenylarsenic acid** and its salts (MICHAELIS and EISENLOHR), A., i, 415.
- p-Carboxyphenylarsenic acid**, nitro- (MICHAELIS and EPPENSTEIN), A., i, 414.
- Carboxyphenylazobenzoylacetic acid** and its salts and ethyl ester (BÜLOW and HAILER), A., i, 326.
- m-Carboxytolyarsenic acid** (MICHAELIS and SEEMAN), A., i, 416.
- p-Carboxytolyarsenic acid** (MICHAELIS and PASEL), A., i, 416.
- Carnallite**, large crystals of, from Beierenrode (BÜCKING), A., ii, 610.
- Carolinium**, new element associated with thorium (BASKERVILLE), A., ii, 85.
- Caro's acid or reagent**, formula of (PRICE), A., ii, 204.
action of, on alkaloids (SPRINGER), A., i, 485.
- action of, on hydrogen bromide, chloride, and fluoride (WEDEKIND), A., ii, 498.
interaction of, with hydroxylamine sulphate (ANGELI and ANGELICO), A., ii, 254.

- Caro's acid or reagent.** See also Per-sulphuric acid under Sulphur.
- Carum Bulbocastanum,** sucrose in the tubercles of (HARLAY), A., ii, 220.
- Carvene.** See *d*-Limonene.
- Carvomentholacetic acid** and its ethyl ester and silver salt (WALLACH and THÖLKE), A., i, 799.
- Casein,** coagulation of, by rennet and by lacto-serum (MÜLLER), A., i, 409.
- alkaline hydrolysis of (FISCHER), A., i, 640.
- action of nitric acid on (HABERMANN and EHRENFELD), A., i, 653.
- soluble compounds of, with hydrogen bromide or iodide (CHEMISCHE FABRIK VON HEYDEN), A., i, 409.
- derivative containing chlorine and sulphur (PANZER), A., i, 194.
- Casein,** chlorinated, action of sodium ethoxide on (PANZER), A., i, 332.
- Caseinogen and its salts** (OSBORNE), A., i, 194.
- Caseonic acid,** chloro- (PANZER), A., i, 332.
- Caseoses,** action of papain and rennin on (KURAÉEFF), A., i, 731.
- Cassava,** sweet, hydrocyanic acid in (CARMODY), A., ii, 100.
- roots. See Agricultural Chemistry.
- Cat,** phloridzin diabetes in the (ARTEAGA), A., ii, 38.
- Catalase** (LOEW), A., i, 732.
- (Loew's), identity of de Rey-Pailhade's philothion with (POZZI-ESCORI), A., i, 513.
- Catalysis and Catalytic action.** See Affinity.
- Catechin,** formula of (KARNOWSKI and TAMBOR; v. KOSTANECKI and KREMBS), A., i, 637.
- and its acetyl derivatives (v. KOSTANECKI and TAMBOR), A., i, 553.
- Catechins** and their azobenzene, acetyl and benzoyl derivatives from *Acacia* and *Gambier Catechus* (PERKIN and YOSHITAKE), T., 1160; P., 1902, 139.
- Catechol** (*pyrocatechol*, 1:2-dihydroxybenzene), action of iodine on, in pyridine solution (ORTOLEVA), A., i, 674.
- Cathode rays.** See under Photochemistry.
- Cathodes.** See Electrochemistry.
- Cell-life.** See Agricultural Chemistry.
- Cell-membranes** in Bacteria and Fungi, composition of (IWANOFF), A., ii, 279.
- Cell-nucleus**, oxidative properties of the (LILLIE), A., ii, 621.
- rôle of, in oxidation and synthesis (LILLIE), A., ii, 271.
- Cellobiose** (*cellose*), and its osazone and phenylhydrazone (SKRAUP and KÖNIG), A., i, 135.
- Cells.** See Electrochemistry.
- Cellulose,** fermentation of (OMELIAŃSKI), A., ii, 468.
- action of acids on (GOSTLING), P., 1902, 250.
- reaction of, with benzene (NASTUKOFF), A., i, 362, 747.
- estimation of (ZEISEL and STRITAR), A., ii, 363.
- Cement,** modification of Schumann's apparatus for determining the specific gravity of (BECK), A., ii, 106.
- Portland, examination of mixtures of slag meal and (BECK), A., ii, 106.
- analysis of (REPORT OF AMERICAN SUB-COMMITTEE), A., ii, 227.
- Portland and natural, estimation of alkalis in (STILLMAN), A., ii, 175.
- Cements,** estimation of free and anhydrous lime in (MAYNARD), A., ii, 897.
- Centrifugal apparatus,** use of, for quantitative analysis (STEINITZER), A., ii, 351.
- Cephalopods,** copper in the liver of (HENZE), A., ii, 94.
- Cerargyrite group** (PRIOR and SPENCER), A., ii, 403.
- Ceratin** (HESSE), A., i, 680.
- Cereals,** estimation of starch in (LINDET), A., ii, 55, 292.
- See also Agricultural Chemistry.
- Cerebrin** from brain (KOCH), A., ii, 676.
- Cerebrospinal fluid** (ZDAREK), A., ii, 518.
- Cerite metals** (BEHRENS), A., ii, 79.
- preparation of the, from *Cerium oxalicum medicinale* (BÖHM), A., ii, 455.
- electrolytic preparation of (MUTHMANN, HOFER, and WEISS), A., ii, 262.
- oxides of, action of alcoholic hydrogen chloride on (MEYER and Koss), A., i, 692.
- See also Earths, rare.
- Cerium,** influence of, on lanthanum containing didymium and praseodymium (MARO), A., ii, 503.
- Cerium** hydroxide, action of hydrogen peroxide and of sodium hypochlorite on (PISSARJEWSKY), A., ii, 565.
- peroxide (BAUR), A., ii, 398; (JOB), A., ii, 399.
- oxycarbide (STERRA), A., ii, 399.
- silicide (STERBA), A., ii, 563.
- tellurate (GUTBIER), A., ii, 558.
- Cerium,** separation of, from a mixture of rare earths (MEYER and Koss), A., ii, 262.

- Cetylbenzene**, *p*-iodo-, and iododichloride (KLAGES and STORP), A., i, 670.
- Cetylmesitylene**, iodoo- (KLAGES and STORP), A., i, 671.
- Cevadine**. See Veratrine.
- Chalcopyrite** as a furnace product (WINKELI), A., ii, 146.
- Chalmersite**, a new sulphide of the copper-glanze group (HÜSSAK), A., ii, 267.
- isoChavibetol* (POMERANZ), A., i, 93.
- Cheese**. See Agricultural Chemistry.
- Chelidoxanthin** (SCHLÖTTERBECK), A., i, 231; (SCHLÖTTERBECK and WATKINS), A., ii, 100.
- Chemical action**. See Affinity.
- combination, probable source of heat of (RICHARDS), A., ii, 444.
 - constitution and composition in relation to density; nitrogen compounds (KANONNIKOFF), A., ii, 244.
 - and physiological action (LAFFONT), A., ii, 466.
 - influence of, on the affinity constants of organic acids (WEGSCHEIDER), A., ii, 494.
 - in relation to affinities of the halogenated hydroxybenzoic acids (COPPADORO), A., i, 783.
 - dynamics and statics under the action of light (WILDERMANN), A., ii, 545.
 - of nickel carbonyl (MITTASCH), A., ii, 307.
 - equilibrium. See Affinity.
 - notation, suggested modifications of the sign of equality for use in (MARSHALL), A., ii, 553.
 - transformations, rôle of time in (VAN'T HOFF, DONNAN, ARMSTRONG, HINRICHSEN, and WEIGERT), A., ii, 75.
- Chestnuts**. See Agricultural Chemistry.
- Chicory**. See Agricultural Chemistry.
- Children**, composition of the fat in (SIEGERT), A., ii, 34.
- See also Infants.
- Chitin**, constitution of (FRÄNKEL and KELLY), A., i, 479.
- Chitosamine**. See Glucosamine.
- Chloral alcoholate**, dissociation of, in solution (BRUNER), A., ii, 305.
- campholates, crystallography of (MINGUIN), A., i, 684.
- Chloral- β -dinaphthylene oxide** (WERNER and GUBSER), A., i, 689.
- Chloral hydrate**, physical properties of, and its use in pharmaceutical chemistry (MAUCH), A., i, 344.
- dissociation of, in solution (BRUNER), A., ii, 305.
- Chloral hydrate**, the swelling and solution of starch by, and its influence on the iodine starch reaction (MAUCH), A., i, 426.
- reaction of, with alkali (BÖTTGER and KÖTZ), A., i, 659.
- physiological action of (ARCHANGELSKY), A., ii, 36.
- Chloric acid**. See under Chlorine.
- Chlorinating action** of a mixture of hydrochloric acid and oxygen (MATIGNON), A., ii, 556.
- Chlorine**, amount of, in the drainage through uncropped and unmanured land (MILLER), P., 1902, 89.
- amount of, in the rain-water collected at Rothamsted (MILLER), P., 1902, 88.
- preparation of pure, and its behaviour towards hydrogen (MELLOR and RUSSELL), T., 1272; P., 1902, 166.
- preparation of, from permanganates (GRAEBE), A., ii, 203.
- evolution of, from the decomposition of potassium chlorate in presence of manganese oxides (SODEAU), T., 1066; P., 1902, 136.
- direct combination of, with carbon (V. BOLTON), A., ii, 393; (LORENZ), A., ii, 452.
- combination of, with carbon monoxide under the influence of light (DYSON and HARDEN), P., 1902, 191.
- union of, with hydrogen (MELLOR and ANDERSON), T., 414; P., 1902, 32; (MELLOR and RUSSELL), T., 1272; P., 1902, 166; (MELLOR), T., 1280, 1292; P., 1902, 169, 170.
- under the influence of light (MELLOR and ANDERSON), T., 414; P., 1902, 32; (BEVAN), A., ii, 237.
- gas, action of light on (MELLOR), T., 1280; P., 1902, 169.
- substitution of, by bromine in the organism (HONDO), A., ii, 464.
- Hydrochloric acid** (*hydrogen chloride*), formation of (MELLOR and ANDERSON), T., 414; P., 1902, 32; (MELLOR and RUSSELL), T., 1272; P., 1902, 166; (MELLOR), T., 1280, 1292; P., 1902, 169, 170.
- formation of, under the influence of light (MELLOR and ANDERSON), T., 414; P., 1902, 32; (BEVAN), A., ii, 237.
- boiling solution of, action of, on arsenic acid (HEHNER), A., ii, 695.
- and ethane, isotherms for mixture of (QUINT GZS), A., ii, 60.
- purification of, from arsenic (THORNE and JEFFERS), P., 1902, 118.

Chlorine:

- Hydrochloric acid** (*hydrogen chloride*), conductivity of, in ethyl ether and the influence of temperature on it (EVERSHEIM), A., ii, 596.
- action of Caro's reagent on (WEDEKIND), A., ii, 498.
- action of, on aqueous formaldehyde (COOPS), A., i, 77.
- combination of, with metallic sulphates (BASKERVILLE), A., ii, 208.
- and nitric acid, relative strength of (KÜHLING), A., ii, 79, 252; (SACKUR; BODLÄNDER), A., ii, 204; (BODLÄNDER and SACKUR), A., ii, 314.
- detection of arsenic in (SEVBEL and WIKANDER), A., ii, 289; (ARNOLD and MENTZEL), A., ii, 354.
- quantitative separation of, from hydrogen cyanide (RICHARDS and SINGER), A., ii, 434.
- Hypochlorous acid** and its salts, behaviour of, during electrolysis (MÜLLER), A., ii, 591; (LUTHER), A., ii, 641; (FOERSTER and MÜLLER), A., ii, 642.
- action of, on praseodymium dioxide (MELIKOFF and KLIMENKO), A., ii, 263.
- Hypochlorites**, current and energy efficiencies obtained in the electrolytic formation of (FOERSTER and MÜLLER), A., ii, 240.
- and hypobromites, stability of (GRAEBE), A., ii, 556.
- Chloric acid**, electromotive behaviour of (MÜLLER), A., ii, 591; (LUTHER), A., ii, 641.
- Chlorates**, current and energy efficiencies obtained in the electrolytic formation of (FOERSTER and MÜLLER), A., ii, 240.
- decomposition of (SODEAU), T., 1066; P., 1902, 136.
- Perchloric acid**, hydrates of (VAN WIJK), A., ii, 649.
- Perchlorate** formation, theory of (SODEAU), T., 1066; P., 1902, 136.
- estimation of, in saltpetre (DUPRÉ), A., ii, 529.
- Chlorine hydrate**, composition of (DE FORCRAFT), A., ii, 392.
- heat of formation of (DE FORCRAFT), A., ii, 123.
- Chlorine, estimation of:**—
- estimation of, by gasometric method (RIEGLER), A., ii, 104.
 - estimation of, in natural waters (WINKLER), A., ii, 46.
- Chlorite** from Aj River, Zlatoust (ZEMJATSCHEWSKY), A., ii, 147.
- β-Chloro-alcohols**, formation of aldehydes and ketones from (KRASSUSKY), A., i, 425.
- Chloro-anhydrides**, polymerisation of (ODDO), A., ii, 6; (CIAMICIAN), A., ii, 123.
- Chloroform** vapour, action of, on resting seeds (SCHMID), A., ii, 683.
- estimation of (PUCKNER), A., ii, 53.
- vapour, estimation of, in air (WALLER), A., ii, 631.
- Chlorhydrins**, constitution of (HENRY), A., i, 417; (TIFFENEAU), A., i, 449.
- Chlorophyll**. See Agricultural Chemistry.
- Chlorosulphonic acid**, decomposition of, into sulphonyl chloride and sulphuric acid (RUFF), A., ii, 13.
- Chocolate**, detection of sesamé oil in (UTZ), A., ii, 482.
- Cholesterol**, esters of (BÖMER and WINTER), A., i, 30.
- Cholesterols**, separation of, quantitatively, from fats (RITTER), A., ii, 111.
- Choline** as a criterion for artificial brandy (STRUVE), A., ii, 636.
- influence of, on secretions (DESGREZ), A., ii, 574.
- Chondro-albumoid** (HAWK and GIES), A., i, 408; ii, 518.
- Chondroitinsulphuric acid**, feeding experiments with (KETTNER), A., ii, 464.
- Chromite** (*chrome iron ore*) from the Rhodope Mountains (KOVÁČ), A., ii, 328.
- Chromium compounds**, constitution of (WYROUBOFF), A., ii, 565, 609.
- Chromium salts**, action of potassium ferricyanide and soluble chlorates on (SAGET), A., ii, 210.
- oxidation of (DAKIN), A., ii, 533.
- Chrom ammonium salts** (WERNER and KLIEN), A., ii, 210.
- Chromium boride** (TUCKER and MOODY), T., 16; P., 1901, 129.
- bromides, hydrated (WERNER and GUESER), A., i, 688.
- chlorides, preparation of (DÖRING), A., ii, 660.
- Chromic chloride** (ROHLAND), A., ii, 144.
- Chromium hydroxide** (FISCHER and HERZ), A., ii, 564.
- oxidisability of (ANTONY and PAOLI), A., ii, 661.
- Chromic oxide** (*chromium sesquioxide*), compounds of, with alumina (DUBOIN), A., ii, 400.
- Chromium trioxide**, crystallisation of (DITTE), A., ii, 264.

- Chromium trioxide**, action of hydrogen chloride on (AUTENRIETH), A., ii, 458.
- Chromic acid**, action of, on hydrogen peroxide (BACH), A., ii, 251.
- diabetes (KOSSA), A., ii, 219.
- detection of, by hydrogen peroxide in presence of vanadic acid (REICHARD), A., ii, 51.
- and dichromic salts, salts of (AUTENRIETH), A., ii, 437.
- Chromates**, double, new series of (BRIGGS), P., 1902, 254.
- analysis of (HERZ), A., ii, 290.
- Sulphochromic acid** and its salts (WYROUOFF), A., ii, 609.
- Chromo-mono- and -di-sulphochromic acids** (WYROUOFF), A., ii, 609.
- Chromium chlorosulphate** (REOURA), A., ii, 563.
- vanadous sulphate (PICCINI and MARINO), A., ii, 664.
- Chromammonium organic compounds** (PFEIFFER), A., i, 138.
- Chromium organic compounds** :—
- halogen compounds with alcohol (KOPPEL), A., ii, 83.
- Chromeyanic acid**, thallium and potassium thallium salts (FISCHER and BENZIAN), A., i, 272.
- Chromo-oxalates**, red alkali (ROSENHEIM and COHN), A., i, 74.
- Diethylenediaminechromium salts**, di-thiocyanato- (PFEIFFER), A., i, 138.
- Ethylenediaminechromium salts** and thiocyanato- (PFEIFFER), A., i, 138.
- Hexacarbaminochromic salts** (WERNER and KALKMANN), A., i, 687.
- Hydroxytriaquo- and Dihydroxydiquodipyridinechromium and Tetra-aquodipyridinechromium salts** (PFEIFFER), A., i, 728.
- Chromone** (*benzo-1:4-pyrone*) and its homologues, salts of (RUHEMANN), T., 420; P., 1902, 45.
- Chromone**, and its α -carboxylic acid (HEYWANG and v. KOSTANECKI), A., i, 816.
- Chromone derivatives** (v. KOSTANECKI and FROEMSDORFF; v. KOSTANECKI and DE RUIJTER DE WILDT), A., i, 303; (DAVID and v. KOSTANECKI), A., i, 690; (HEYWANG and v. KOSTANECKI), A., i, 816.
- Chromophore groups** (RUPE and WASSERZUG), A., i, 40.
- Chromosantonin** (MONTEMARTINI), A., i, 545.
- Chrompicotite** from British Columbia (HOFFMANN), A., ii, 328.
- Chrysanthrol**. See Dihydroxyanthranol.
- Chrysarobin** and its acetyl compounds from commercial chrysarobin (JOWETT and POTTER), T., 1578; P., 1902, 192.
- Chrysazin**, reduction of, with hydrogen iodide (SCHROBSPORFF), A., i, 773.
- p*-dibromo- and *p*-dichloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 477.
- Chrysodiphenic acid**. See 2-Phenyl-naphthalene-1:7-dicarboxylic acid.
- Chrysophanic acid** and its acetyl derivative (JOWETT and POTTER), T., 1583; P., 1902, 192.
- Chrysoquinone sulphate** (KEHRMANN and MATTISSON), A., i, 229.
- Chrysotile** from the Rhodope Mountains (KOVÁŘ), A., ii, 328.
- Chymosin**. See Rennin.
- Cinchomeron-3-amic acid** and its silver salt (GABRIEL and COLMAN), A., i, 842.
- Cinchomeronic acid**, derivatives of (GABRIEL and COLMAN), A., i, 401, 840.
- α -methyl ester, conversion of, into apophyllenic acid (KIRPAL; KAASS), A., i, 564.
- α - and β -methyl esters and their methiodides (KAASS), A., i, 565.
- Cinchomeronimidine** and *iso*nitroso-, and their salts (GABRIEL and COLMAN), A., i, 842.
- Cinchomerylglycine**, ethylester (GABRIEL and COLMAN), A., i, 401.
- Cinchonidine** ethyl carbonate (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 392.
- Cinchonifine** and **Cinchonine** (SKRAUP), A., i, 306.
- allo***Cinchonine** and its salts and acetyl and benzoyl derivatives (v. PECSICS), A., i, 725.
- sulphate, oxidation of (SKRAUP and ZWERGER), A., i, 726.
- α -*iso***Cinchonine**, oxidation of, and its methiodide (SKRAUP and ZWERGER), A., i, 305.
- iso***Cinchonines**, α - and β -, physical properties of (SKRAUP), A., i, 305.
- Cinchotine** (SKRAUP), A., i, 306.
- Cinchotinesulphonic acid** (SCHMID), A., i, 53.
- Cineol** from oil of rue (POWER and LEES), T., 1590; P., 1902, 193.
- Cinnamaldehyde**, condensation of, with isobutaldehyde (MICHEL and SPITZAUER), A., i, 292.
- Cinnamylacrylic acid**, action of barium hydroxide on (DOEBNER), A., i, 599.
- Cinnamarylpyridazine** and its salts (POPPENBERG), A., i, 62.

- Cinnamic acid** (*β-phenylacrylic acid*), conversion of, into *α-truxillic acid* (RIIBER), A., i, 785.
- Cinnamic acid**, salts, solubilities of (TARUGI and CHECCHI), A., i, 204.
- Cinnamic acid**, *α*- and *β-dibromo-*, action of sulphuric acid on (GLAWE), A., i, 782.
- p-chloro-α-cyano-*, and its esters (v. WALTHER and RAETZE), A., i, 467.
- op-dinitro-*, and its salts, ethyl ester, and dibromide (FRIEDLÄNDER and FRITSCH), A., i, 782.
- Cinnamic acids**, three isomeric, and their derivatives (MICHAEL), A., i, 32.
- Cinnamon oil** from Ceylon, constituents of (WALBAUM and HÜTHIG), A., i, 685.
- Cinnamoylaminoacetic acid**, and its ester and nitrile (KILAGES), A., i, 355.
- 2-Cinnamoyl-3-methylquinoxaline** (SACHS and RÖHMER), A., i, 837.
- Cinnamylideneacetophenone** phenylhydrazone and semicarbazone (SORGE), A., i, 379.
- Cinnamylidene-p-aminoazobenzene** (WIELEZYŃSKI), A., i, 510.
- Cinnamylidenemalonic acid**, bimolecular. See Diphenyltetramethylenebis(methylenemalonic acid).
- Cinnamylidene-methyl- and -ethyl- amines** (ANDREE), A., i, 210.
- Cinnamylquinine** hydrochloride (KALLE & Co.), A., i, 692.
- Citraconanil** bromide and bromo- (FICHTER and PREISWERK), A., i, 443.
- Citralideneacetic acid** and its ethyl ester (TÉTRY), A., i, 585.
- Citralideneacetoacetic acids** (*iononecarboxylic acids*), ethyl esters, aliphatic and cyclic (HAARMANN & REIMER), A., i, 342.
- cycloCitrals** (HAARMANN & REIMER), A., i, 385.
- Citrapten** and its derivatives (SCHMIDT and ADLUNG), A., i, 45.
- Citraralic acid** (ZOPF), A., i, 789.
- Citric acid**, action of bromine and potassium permanganate on (WÖHLK), A., ii, 364.
- action of formaldehyde on (STERNBERG), A., i, 259.
- detection of, in milk (WÖHLK), A., ii, 364; (DENIGES), A., ii, 365.
- Citric acid**, ferric salt, distinction between ferric potassium tartrate and (FIORA), A., i, 235.
- Citric acid**, dimethyl hydrogen ester, and its salts (SCHROETER and SCHMITZ), A., i, 531.
- Clay**, plasticity of (ROHLAND), A., ii, 497.
- Clays**, rational analysis of (SABECK), A., ii, 429.
- Cloéz reaction** (CHATTAWAY and WADMORE), P., 1902, 56.
- Clover**. See Agricultural Chemistry.
- Cloves**, oil of, estimation of eugenol in (VERLEY and BÖLSING), A., ii, 54.
- Coagulation** of blood in marine animals (BOTTAZZI), A., ii, 410.
- Coaguloses** (KURAÉEFF) A., i, 731.
- Coal**, formation of (STEIN), A., ii, 87.
- estimation of sulphur in (REITLINGER), A., ii, 692.
- Coals**, European, use of the peroxide calorimeter for (PARR), A., ii, 432.
- See also Fuel.
- Coal-gas**, cyanogen compounds in (HARTLEY), A., i, 208.
- detection and estimation of small quantities of hydrogen sulphide in (DIBBIN and GRIMWOOD), A., ii, 582.
- Coal tar**, isomeric dimethylecoumarones in (BOES), A., i, 151.
- dimethylindenones in (BOES), A., i, 435.
- methylindenones from (BOES), A., i, 534.
- α*- and *β-naphthafurfurans* from (BOES), A., i, 554.
- Cobalt alloys** with copper, electrical properties of (REICHARDT), A., ii, 118.
- Cobaltammonium compounds** :—
- Cobalt bases**, number of ions in (PETERSEN), A., ii, 126.
- Luteocobalt salts** (KLOBB), A., ii, 143.
- crystallography of (KLOBB), A., ii, 23.
- Luteocobaltiammine perchlorates** (ALVISI) A., ii, 24.
- Alvisi's, crystallography of (MILLOSEVICH), A., ii, 24.
- Cobalt-tetrammine** series, isomerism in the (HOFMANN and JENNY), A., ii, 81.
- Cobalt salts**, conditions of equilibrium of deliquescent and hygroscopic (HARTLEY), A., ii, 197.
- compounds of, with cupric oxide (MAILHE) A., ii, 140, 262.
- Cobalt chloride**, colour changes of (DONNAN and BASSETT), T., 939; P., 1902, 164.
- compound of, with ethyl alcohol (BOURION), A., i, 334.
- compound of, with iodine trichloride (WEINLAND and SCHLEGELMILCH), A., ii, 315.
- hydroxide, action of sulphurous acid on (CARPENTER), T., 11; P., 1901, 212.
- ammonium phosphate, estimation of, volumetrically (DAKIN), A., ii, 628.
- Cobaltous** potassium sulphate (MALLET), T., 1551; P., 1902, 198.

Cobalt organic compounds:—

Cobalticyanic acid, thallium and potassium thallium salts (FISCHER and BENZIAN), A., i, 272.

Cobaltioxalic acid, alkali salts (CO-PAUX), A., i, 586.

Cobalt, detection and separation of:—

test for (DANZIGER), A., ii, 533.
modification of Rose's method for the separation of, from nickel (TAYLOR), A., ii, 476.

quantitative separation of, from zinc (ROSENHEIM and HULDSCHINSKY), A., ii, 697.

Cocaine hydrochloride, decomposition of (HORST), A., i, 306.

detection of (PROELSS), A., ii, 295.

Coccic acid (HESSE), A., i, 681.

Cochemillie acid, trimethyl ester, and anhydride (LIEBERMANN and LINDENBAUM), A., i, 787.

Cocos butter (*cocoanut oil*) composition of (KLIMONT), A., i, 340.

Cocoa-shell powder, analysis of (WELMANS), A., ii, 372.

Coleenterata, poison of the tentacles of. See Hypnotoxin.

Coffee, oil of (ERDMANN), A., i, 551.
berries, constituents of (GRAF), A., ii, 40.

tree, constituents of the flowers of the (GRAF), A., ii, 470.

Collagen and reticulin (TEBB), A., ii, 218; (SIEGFRIED), A., ii, 517.

s-Collidine. See 2:4:6-Trimethylpyridine.

Colloidal bubbles, formation of, from heptylamine soaps and water (KRAFFT; KRAFFT and FUNCKE), A., ii, 601.

metallic solutions, barium sulphate as a reagent for (VANINO), A., ii, 249.

metals. See Gold, Mercuric oxide, Silver and its oxide.

solutions, osmotic properties of (MOORE and PARKER), A., ii, 413.

behaviour of insoluble inorganic compounds in (DE BRUYN), A., ii, 646.

Colloids (WYRROUBOFF), A., ii, 128.

nature and properties of (ZACHARIAS), A., ii, 249.

physical changes in the condition of (PAULI and RONA), A., ii, 388.

the red solution of gold as a reagent for (ZSIGMONDY), A., ii, 188.

precipitation of, by electrolytes (WHITNEY and OBER), A., ii, 65.

Colophony (FAHRION), A., i, 165, 301.
estimation of, in the presence of fatty acids (HOLDE), A., ii, 632.

Coloradoite from Western Australia (SIMPSON), A., ii, 509, 510.

Colostrum. See Agricultural Chemistry.

Colour changes of cobalt, copper, and ferric chlorides (DONNAN and BASSETT), T., 939; P., 1902, 164.

Colouring matter of the aesculetin series (LIEBERMANN and LINDENBAUM), A., i, 785.

from the diazotisation of diaminodiphenylbenzidine and tolidine (SCHULTZ and FLACHSLÄNDER), A., i, 752.

blue, of the anthracene series (BADISCHE ANILIN- & SODA-FABRIK), A., i, 721.

anthracene, containing nitrogen (FARBENFARIKEN VORM. F. BAYER & CO.), A., i, 722.

of apricots (DESMOULIERE), A., ii, 685.
of the benzaldehyde-green and rosamine groups (LIEBERMANN), A., i, 636.

green, from the blood of animals and persons poisoned by phenylhydrazine (LEWIN), A., i, 67; ii, 160.

of the Capri-blue group (MÖHLAU, KLIMMER, and KAHL), A., i, 838.
from the flowers of *Delphinium Consolida* (PERKIN and WILKINSON), T., 585; P., 1900, 182.

of *Copaifera bracteata* (KLEEREKOPER), A., i, 48, 111.
of green ebony (PERKIN and BRIGGS), T., 210; P., 1902, 11.

from *Isatis tinctoria* (MARCHLEWSKI), A., i, 616.
naphthacridine (ULLMANN), A., i, 55, 56, 499, 500; (ULLMANN and MARIĆ), A., i, 183; (ULLMANN, RACOVITZA, and ROZENBAND; ULLMANN, ROZENBAND, MÜHLHAUSER, and GRETHER), A., i, 240.

nitrosophenol (DECKER and v. SOLONINA), A., i, 767.

oxazine and thiazine, constitution of, and their relation to azonium compounds (KEHRMANN), A., i, 566.

phenolic, reaction of (PERKIN and WILSON), P., 1902, 215.

from *Picea vulgaris* (TSCHIRCH and KOCH), A., i, 552.

thiazine (AKTIENGESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 495, 496.

yellow, from thiocyanates (GOLDBERG), A., i, 137.

triphenylmethane, ionic phenomena exhibited by (FISCHER), A., i, 717.

from 2:3:8-trihydroxynaphthalene and diazotised sulphanilic acid (FRIEDLÄNDER and SILBERSTERN), A., i, 795.

Colouring matters of urine (RÖSSLER), A., i, 49.
 rise of, in plants (GOPPELSROEDER), A., ii, 424.
 action of, on the activity of yeasts (ROSENSTIEHL), A., ii, 219.
 acid, dyeing of animal fibres by (SISLEV), A., i, 815.
 artificial, detection of, in fresh and sour milk (BLYTH), A., ii, 540.

Colouring matters. See also:—
 Alizarin.
 Apigenin.
 Bilirubin.
 Biliverdin.
 Brazilein.
 Brazilin.
 Carboxyhaemoglobin.
 Catechins.
 Chlorophyll.
 Digitoflavone.
 Di-indotin.
 Dimethylindigotins.
 Excoecarin.
 Excoecarone.
 Haematein.
 Haematoxylin.
 Haemoglobins.
 Haemoverdin.
 Hexamethylindigotin.
 Indigo.
 Indigo-red.
 Indigo-white.
 Indigotin.
 Indirubin.
 Isatocyanin.
 Jacarandin.
 Kamphorol.
 Luteolin.
 Mesoporphyrin.
 Myricetin.
 Myrticolorin.
 Osyritrin.
 Phoenicein.
 Phylloporphyrin.
 Proteinchromone.
 Quercetagatin.
 Quercetin.
 Rhamnazin.
 Rhamnetin.
 Robinin
 Seatocyanin.
 Scutellarein.
 Tannins.
 "Taran."
 Tetramethylhaematoxylin.
 5:7:5':7'-Tetramethylindigotin.
 Trimethylbrazilin.
 Urobilin.
 Violaquercitrin.

Combustions, automatic regulation of the evolution of carbon dioxide and nitrogen in (DEIGLMAYER), A., ii, 474.
Compounds, complex, investigation of, in solution (BODLÄNDER), A., ii, 63.
Compressibility of gases at low pressure (BATTELLI), A., ii, 244.
 of vapours, accurate method of measuring the (STEELE), T., 1076; P., 1902, 165.
Conchite, identity of ktypeite with (VATER), A., ii, 89.
Condenser, simple (HABERMANN and ÖSTERREICHER), A., ii, 201.
Condensers and Reflux condensers (LANDSIEDL), A., ii, 390.
Condiments. See Agricultural Chemistry.
Conductivity, electrical. See Electrochemistry.
l-**Coniine** and its salts (AHRENS), A., i, 391.
*iso***Coniine** (LADENBURG), A., i, 54.
Contact reactions, apparatus for studying (TRILLAT), A., ii, 602.
 pyrogenic, of organic compounds (PATTEFF), A., i, 4, 335.
Contraction, rhythmic, effect of calcium and of free oxygen on (MAXWELL and HILL), A., ii, 621.
Copaivic acids. See β -Metacopaivic and Paracopaivic acids.
Copal, Manila. See Resin of *Dammara orientalis*.
Copazoline, 4-chloro- (GABRIEL and COLMAN), A., i, 841.
Copper, theory of the electrolytic extraction of (EGLI), A., ii, 323.
 application of the phase rule to the fusing point of (RICHARDS), A., ii, 455.
 pseudo-solution of (GUTBIER), A., ii, 610.
 behaviour of salt solutions towards (Ost), A., ii, 658.
 reduction of, by solutions of ferrous salts (BIDDLE), A., ii, 18.
 metallic, action of, on roots (LEHMANN), A., ii, 420.
 in the liver of Cephalopods (HENZE), A., ii, 94.
 combination of, in the liver (SLOWTOFF), A., ii, 618.
Cuprammonium salts, constitution of (BOUZAT), A., ii, 502.
 chlorides, anhydrons (BOUZAT), A., ii, 607.
 oxide, displacement of strong bases by (BOUZAT), A., ii, 550.
Copper alloys with aluminium (GUILLET), A., ii, 21.
 with antimony, iron, lead, and tin, analysis of (PONTIO), A., ii, 478.

- Copper alloys** with cobalt, electrical properties of (REICHARDT), A., ii, 118.
 with tin, constitution of (HEYCOCK and NEVILLE), A., ii, 261.
- Copper salts**, conditions of equilibrium of deliquescent and hygroscopic (HARTLEY), A., ii, 197.
 oxidising action of (SCHAER), A., ii, 140.
- Copper** bromo-, chloro-, and iodo-bismuthites (DUCATTE), A., ii, 503.
 chloride, colour changes of (DONNAN and BASSETT), T., 955; P., 1902, 164.
 nitrate, action of, on benzene (WASSILIEFF), A., i, 361.
 sulphate, mixed crystals of, with zinc sulphate (FOOTE), A., ii, 19.
 influence of, on the vapour pressure of aqueous ammonia solution (PERMAN), T., 487; P., 1901, 261.
 action of, on meteoric irons (FARRINGTON), A., ii, 569.
- sulphide, solubility of, in alkali sulphides (RÖSSING), A., ii, 230.
- Cupric** bromide and chloride, precipitation of, by sulphuric acid (VIARD), A., ii, 562.
 hydroxide, action of, on aqueous solutions of metallic salts (MAILHE), A., ii, 140, 261.
 nitrate, compound of, with cupric oxide (MAILHE), A., ii, 261.
 oxide, ammoniacal, thermochemistry of (BOUZAT), A., ii, 490.
 displacement of strong bases by (BOUZAT), A., ii, 550.
- Cuprous** compounds, ions of (BODLÄNDER), A., ii, 642.
 ion, nature of (BODLÄNDER and STORBECK), A., ii, 502.
 haloids (BODLÄNDER and STORBECK), A., ii, 502, 607.
 chloride, preparation and reactions of (GRÖGER), A., ii, 19.
 iodide, density of (SPRING), A., ii, 608.
 oxide, yellow (GRÖGER), A., ii, 562.
- Copper organic compounds** :—
 thiocyanates, compounds of, with pyridine (LITTERSCHEID), A., i, 308.
 compounds of, with quinoline and isoquinoline (LITTERSCHEID), A., i, 829.
- Cuprous thiocyanate**, action of potassium cyanide on (IRZIG), A., i, 208.
- Copper, estimation and separation of** :—
 Lake Superior fire assay for (HEATH), A., ii, 698.
 crude, analysis of (TRUCHOT), A., ii, 228, 290.
- Copper, estimation and separation of** :—
 estimation of, by aluminium foil (PERKINS), A., ii, 475.
 estimation of, by potassium permanganate (GUESS), A., ii, 698.
 estimation of, gravimetrically and volumetrically (COHN), A., ii, 50.
 estimation of, volumetrically (PARR), A., ii, 532.
 estimation of, volumetrically, by potassium iodide (LITTERSCHEID), A., ii, 531.
 estimation of, as cuprous thiocyanate in presence of antimony, arsenic, bismuth, and tin (VAN NAME), A., ii, 358.
 estimation of, as cuprous thiocyanate, influence of hydrochloric acid on the (VAN NAME), A., ii, 357.
 estimation of, electrolytically, in iron (KOCH), A., ii, 357.
 estimation of, in pyrites (HAAS), A., ii, 229.
 separation of, from antimony, lead, and tin (RÖSSING), A., ii, 230.
- Copper pyrites** from St. Agnes, Cornwall (PRIOR), A., ii, 404.
- Copyrine**, derivatives of (GABRIEL and COLMAN), A., i, 401.
- Cordierite** from Långfals Mine, Grängärde, Dalarna (WEIBULL), A., ii, 409.
- Corpses**, exhumed, estimation of nitroglycerol in an (POND), A., ii, 361.
- Corpses**, putrefying, behaviour of morphine and strychnine in (AUTENRIETH), A., ii, 368.
- Corundum-syenites** in Madras (HOLLAND), A., ii, 148.
- isoCorybulbine*, **Corycavamine**, and **Corydine** (GADAMER, ZIEGENBEIN, and WAGNER), A., i, 306.
- Corycavamine** and **Corydine** and their salts (GADAMER, ZIEGENBEIN, and WAGNER), A., i, 391.
- Corycavine** (GADAMER, ZIEGENBEIN, and WAGNER), A., i, 307, 391.
- Corydaline** (DOBBIE and LAUDER), T., 146; P., 1901, 252.
- Corydaline** and its constitution and oxidation products (DOBBIE and LAUDER), T., 145; P., 1901, 252.
 relation of, to berberine (DOBBIE and LAUDER), T., 145, 157; P., 1901, 252, 255.
- Corydalinesulphonic acid** (GADAMER, ZIEGENBEIN, and WAGNER), A., i, 307.
- Corydilic acid** and **Corydie acid** and their oxidation (DOBBIE and LAUDER), T., 146; P., 1901, 252.
- Corytuberine** and its salts (GADAMER, ZIEGENBEIN, and WAGNER), A., i, 392.

- Cotarnic acid**, methylimide of (FREUND and WULFF), A., i, 556.
- Cotarnine** (FREUND and WULFF; FREUND and BAMBERG), A., i, 556.
- Cotoxin**, constitution of, and its nitroso-derivative (POLLAK), A., i, 165.
- Cottonseed oil**, the Bechi test for (GILL and DENNISON), A., ii, 482.
- Halphen's reaction for (STEINMANN; RAIKOW), A., ii, 366.
- Cotton seeds** of various origins cultivated in Central Asia, oil of (TSCHERNEVSKY), A., ii, 685.
- Coulometer**. See Voltameter under Electrochemistry.
- Coumarilic acid**, *mono-* and *di*-chloro- (TILDEN and BURROWS), T., 511; P., 1901, 217.
- ψ -**Coumarin** from *Dorstenia Klaineana* (HECKEL and SCHLAGDENHAUFFEN), A., ii, 101.
- Coumarone**, mercury compounds of (BOES), A., i, 151.
- Coumarone**, 1- and 2-bromo- (STOERMER and KAHLERT), A., i, 457.
- 1-nitro-, and its reactions (STOERMER and KAHLERT), A., i, 457.
- Coumarones**, homologous (BOES), A., i, 291.
- Cows**. See Agricultural Chemistry.
- Crab** and *Sacculina*, comparison of the organic liquids of the (BRUNTZ and GAUTRELET), A., ii, 676.
- Cream of tartar**. See Tartaric acid, potassium hydrogen salt.
- Creatine** and **Creatinine** (JOLLES), A., i, 231.
- action of formaldehyde on (JAFFÉ), A., i, 748.
- Crenilabrus pavo*, blue pigment from (v. ZEYNEK), A., i, 168.
- o-Cresol*, tetrabromo-, methyl ethers of (ANSELMINO), A., i, 216.
- 3:5-dibromo- ω -nitro-, and its acetate (STEPHANI), A., i, 148.
- m-Cresol*, critical constant and molecular complexity of (GUYE and MALLETT), A., ii, 243.
- m-Cresol*, tetrabromo-, methyl ethers of (ANSELMINO), A., i, 216.
- tribromo- ω -nitro- (STEPHANI), A., i, 148.
- p-Cresol*, condensation of, with benzaldehyde (FEUERSTEIN and LIPP), A., i, 769.
- ψ -bromide, *tetrachloro*. See *p*-Hydroxybenzyl bromide, *tetrachloro*.
- p-Cresol*, bromo-derivatives (ZINCKE and WIEDERHOLD), A., i, 284.
- dibromo-, nitroketone and ψ -quinol of (AUWERS), A., i, 217.
- p-Cresol*, 3-bromo-5-nitro-, and its acetyl derivative (AUWERS), A., i, 218.
- o-iodo*- (DIMROTH), A., i, 850.
- thio-, and its derivatives (RABAUT), A., i, 673.
- p-Cresolmercury salts* (DIMROTH) A., i, 849.
- hydroxide, internal anhydride of (DIMROTH), A., i, 849.
- β -Cresolic acid**. See 2-Hydroxy-m-toluic acid.
- Critical constants**, measurement of (GUYE and MALLETT), A., ii, 195, 242, 248, 302.
- extension of the idea of (BATSCHINSKI), A., ii, 444.
- of hydrocarbons (GUYE and MALLETT), A., ii, 195, 303.
- and molecular complexity of some organic compounds (GUYE and MALLETT), A., ii, 243, 303.
- Critical phenomena** and vaporisation, theory of the (TRAUBE), A., ii, 551.
- Crocin**, dextrose from (KASTNER), A., i, 685.
- Crotonacetal** and its conversion into methyltriose (WOHL and FRANK), A., i, 532.
- Crotonic acid**, β -amino-, methyl ester (LAPWORTH and HANN), T., 1505; P., 1902, 145.
- $\alpha\beta$ -dibromo-, and its isomeride, methyl esters of (MICHAEL and MIGHILL), A., i, 129.
- bromo- and chloro-amino-, ethyl esters (BEHREND and SCHREIBER), A., i, 14.
- Crotonylolhomonicotinic acid**, lactone of, and its salts (KOENIGS), A., i, 180.
- Cryoscopic researches** (CHRUSTSCHOFF), A., ii, 382.
- Cryoscopy**, new proof of the formula $d = \frac{0.02T^2}{L}$ (LENGFELD), A., ii, 5.
- See also Freezing point.
- Crystalline** form and molecular structure, relation between (ZIRNGIEBL), A., ii, 496.
- of distilled metals (KAHLBAUM, ROTH, and SIEDLER), A., ii, 259.
- liquids, so-called (TAMMANN), A., ii, 445.
- Crystallisation** and fusion (DUHEM), A., ii, 61.
- of chromium trioxide (DITTE), A., ii, 264.
- of iron (OSMOND and CARTAUD), A., ii, 400.
- of peroxide of iron (DITTE), A., ii, 326.

- Crystallography** of platinichlorides of aliphatic amines (RIES), A., i, 747.
 of ammonium haloids (SLAVÍK), A., ii, 561.
 of anisylidene-, benzylidene-, ethyl-salicylidene-, and methylsalicylidene-camphor (MINGUIN), A., i, 632.
 of benzylidene-camphor and its bromo-derivative (MINGUIN), A., i, 798.
 of the brominated derivatives of benzylidene- and benzyl-camphor (MINGUIN), A., i, 685.
 of the borneols and their esters, and of bromal and chloral bornylate (MINGUIN), A., i, 684.
 of carbamide and its derivatives (MEZ), A., i, 86.
 of some luteocobaltic salts (KLOBB), A., ii, 23.
 of Alvisi's luteocobaltiammine perchlorates (MILLOSEVICH), A., ii, 24.
 of methyl and ethyl methylecampho-carboxylate, methylcamphoronitrile, and methylcamphorimide (MINGUIN), A., i, 658.
- Crystals**, method for separating, from alloys (VAN EJK), A., ii, 496.
 mixed, formation of, by sublimation (BRUNI and PADOA), A., ii, 648.
 isomorphous, of hydrated salts, heterogeneous equilibrium between (BRUNI and MEYERHOFFER), A., ii, 308.
 hydrated, decomposition of (HOLL-MANN), A., ii, 446.
 of copper sulphate and zinc sulphate (FOOTE), A., ii, 19.
 of magnesium and zinc sulphates (HOLL-MANN), A., ii, 446.
 of selenium and sulphur (RINGER), A., ii, 651.
 of silver chlorate and sodium chloride, and their solutions (FOOTE), A., ii, 453.
- Cumarophenazine**, 2-(or 3-) chloro- (v. KORCZYNSKI and MARCHLEWSKI), A., i, 647.
- ψ-Cumenol tribromides** (AUWERS and ANSELMINO), A., i, 214; (ANSELMINO), A., i, 286.
- tribromide**, second, constitution of (AUWERS and ANSELMINO), A., i, 214.
- ψ-Cumenol**, its bromo-, cyano-, nitro-, and thiocyano-derivatives and their acetyl compounds and ethers (AUWERS, SCHÜMANN, and BROICHER), A., i, 147.
- dibromo-**, ethyl ether (ANSELMINO), A., i, 216.
- s-pentabromo-** (AUWERS and ANSELMINO), A., i, 215.
- ψ-Cumenol**. See also *p-Hydroxy-ψ-cumyl*.
- Cuminaldehyde**, condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 819.
- condensation of, with quinaldine (v. GRABSKI), A., i, 563.
- ψ- and p-Cumyl-arsenic acids** and -chloroarsines (MICHAELIS and OBERG), A., i, 416.
- β-ψ-Cumyl-β-butylene** (KLAGES), A., i, 668.
- Cumylidene** and **Cumyl-methylamines** and -ethylanimes and their salts (SCHWABBAUER), A., i, 230.
- ψ-Cumyl methyl ketone**, oxidation of (VAN SCHERPENZEEL), A., i, 103.
- ψ-Cumylsulphoneacetic acid** (TRÖGER and BUDDE), A., i, 776.
- ψ-Cumylsulphone-ethylalcohol** and ether (TRÖGER and BUDDE), A., i, 775.
- Cupiferous ochre** from New Jersey (CHESTER), A., ii, 611.
- Curare**, action of, on the excretion of carbon dioxide and nitrogen (FRANK and v. GEBHARD), A., ii, 417.
- physiological action of (ROTHBERGER), A., ii, 38.
- Curare poisoning**, metabolism during (FRANK and VOIT), A., ii, 161.
- Current**. See *Electrochemistry*.
- Cyamelide** (SENIER and WALSH), T., 290; P., 1902, 18.
- Cyanogen**, spectrum of, peculiarities in the (KING), A., ii, 373.
- spectrum of, in coal gas flame (HARRELEY), A., i, 208.
- solvent and dissociative power of liquid (CENTNERSZWER), A., ii, 126.
- Cyanogen compounds** in coal gas (HARRELEY), A., i, 208.
- Cyanogen bromide**, action of, on tertiary amines (v. BRAUN and SCHWARZ), A., i, 365.
- chloride, action of, on sodium camphor (DUVAL), A., i, 106.
- haloids, constitution and reactions of (CHATTAWAY and WADMORE), T., 192; P., 1902, 5.
- Hydrocyanic acid (hydrogen cyanide)**, in sweet cassava (CARMODY), A., ii, 100.
- in the buds of *Prunus* (VERSCHAFFELT), A., ii, 523.
- in plants (DUNSTAN and HENRY), A., ii, 578.
- preparation of, in the electric furnace (HOYERMANN), A., i, 355.
- constitution of (CHATTAWAY and WADMORE), T., 191; P., 1902, 5; (WADE), T., 1596; P., 1902, 65.

Cyanogen:

Hydrocyanic acid (*hydrogen cyanide*), liquid, solvent and dissociative power of (CENTNERSZWER), A., ii, 126.

detection of, in presence of thiocyanic, hydroferrocyanic, and hydroferricyanic acids and their salts (PREISS), A., ii, 706.
estimation of (ARCHETTI), A., ii, 538.

quantitative separation of, from hydrogen chloride (RICHARDS and SINGER), A., ii, 434.

Cyanide, estimation of, in presence of a chloride (GATEHOUSE), A., ii, 53.

Cyanic acid, constitution of (CHATTAWAY and WADMORE), T., 191; P., 1902, 5.

polymerisation of (SENIER and WALSH), T., 290; P., 1902, 13.

*iso***Persulphocyanic acid**, formation of (DIXON), T., 168; P., 1901, 261.

Cyanohaemoglobin. See under Hæmoglobin.

Cyanuric acid (SENIER and WALSH), T., 290; P., 1902, 13.

constitution of (CHATTAWAY and WADMORE), T., 191; P., 1902, 6.

Cyanuric acid, mercuric salt (HANTZSCH), A., i, 662.

Cyanuric acid, trichloroimino- (CHATTAWAY and WADMORE), T., 200; P., 1902, 6.

*iso***Cyanuric acid**, mercuric salt (HANTZSCH), A., i, 662.

Cyclic compounds, heats of combustion of (ZUBOFF), A., i, 144.

Cymene, 2- and 3-iodo-, and iododichlorides (KLAGES and STORP), A., i, 671.

Cynoglossine-Riedel (SIEDLER and KÖRNER), A., i, 487.

Cystein, constitution of (NEUBERG), A., i, 743.

Cystin from proteid, constitution of (FRIEDMANN), A., i, 731.

behaviour of, to phosphotungstic acid (WINTERSTEIN), A., ii, 294.

metallic compounds of (MAUTHNER), A., i, 133.

D.

Dabdia russellii, poison of the (LAMB and HANNA), A., ii, 278.

Dammar resin, solubility of (COFFIGNIER), A., i, 633.

Dammaria orientalis, resin of (TSCHIRCH and KOCH), A., i, 478.

Dates. See Agricultural Chemistry.

Datolite from Canada (HOFFMANN), A., ii, 147.

from San Francisco (EAKLE and SCHALLER), A., ii, 213.

Day and hour of meeting, discussion on P., 1901, 208, 235, 249, 251; 1902, 1.

n-Decaldehyde (SCHIMMEL & Co.), A., i, 345.

Decane- β -dione. See Acetyl methyl-heptanone.

Decenoic acid and its ethyl ester and amide (WALLACH and FRESENIUS), A., i, 800.

Decinyl alcohol, trichloro- (trichloromethyl- β -octinylcarbinol) (MOUREU and DESMOTS), A., i, 289.

Decoic acid (δ -methyl- α -isopropylhexoic acid, isopropylisoanhydric acid), and its amide, anilide, and chloride (NEF), A., i, 7.

Decoic acid, amino-, ethyl ester, action of methyl iodide on, and its ϵ -betaine and hydrochloride (WALLACH and KÖSCH), A., i, 724.

Decoic acid (β -isopropylheptoic acid), ϵ -amino-, and its esters, betaine and lactone (WALLACH and FRESENIUS), A., i, 725, 800.

Decomposition-tension of molten sodium hydroxide and of lead chloride (SACHER), A., ii, 120.

Decyl alcohol (*tripropylcarbinol*) (KONOWALOFF), A., i, 336.

$\alpha\gamma$ **Decylene glycol** (α -isobutyl- β -isopropyltrimethylene glycol, ϵ -methyl- β -isopropyl- $\alpha\gamma$ -hexylene glycol) (NEF), A., i, 7; (ROSINGER), A., i, 526.

Dehydrocampholenolactone (BÉHAL), A., i, 419.

Dehydrocamphoric acid and its isomeride (BREDT, HOUVEN, and LEVY), A., i, 374.

Dehydrocamphylcarbinol (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 478.

Dehydrocorydaline (DOBIE and LAUDER), T., 145; P., 1901, 252.

Dehydrromenthylcarbinol (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 477.

Dehydromucic acid. See Furfurandicarboxylic acid.

Dehydropyrropinopinacolyl alcohol and its acetate (DELACRE), A., i, 775.

*iso***Dehydrothio-m-xylidine** (SCHULTZ and TICHOMIROFF), A., i, 401.

Delphinium Consolida, colouring matter of the flowers of (PERKIN and WILKINSON), T., 585; P., 1900, 182.

Denitrification. See Agricultural Chemistry.

- Density** in relation to chemical constitution and composition; nitrogen compounds (KANONNIKOFF), A., ii, 244.
 of liquids, pipette for determining the (GIRARDET), A., ii, 5.
 of salts of borotungstic acid (KAHLBAUM, ROTH, and SIEDLER), A., ii, 260.
 of cuprous iodide (SPRING), A., ii, 608.
 of aqueous solutions of ferrous chloride (DUNN), A., ii, 400.
 of mixtures of hydrazine and water (DITO), A., ii, 499.
 of magnesium chloride solutions (BREMER), A., ii, 76.
 of distilled metals (KAHLBAUM, ROTH, and SIEDLER), A., ii, 259.
 of liquid oxygen, nitrogen, argon, and carbon monoxide, variation of, with temperature (BALY and DONNAN), T., 907; P., 1902, 115.
 of 3:5-dichloro-1:1-dimethyl- $\Delta^{2:4}$ -dihydrobenzene (PERKIN), T., 828.
 of dichloro-*o*-xylene (PERKIN), T., 1535.
 of 1:1-demethyl- $\Delta^{2:4}$ -dihydrobenzene (PERKIN), T., 836.
 of fluid and solid magmas (DOELTER), A., ii, 332.
 of volatile oils (SCHREINER and DOWNER), A., i, 108.
 See also Vapour density.
- Deoxybenzoin**, preparation of (THIELE and STRAUS), A., i, 155; (STOBBE), A., i, 298.
- isomeric additive compounds of, with benzylidene-*p*-toluidine, *m*-nitrobenzylideneaniline, and benzylidene-*m*-nitroaniline (FRANCIS), T., 441; P., 1902, 57.
- Deoxytrimethylbrazilone** (PERKIN), T., 1018; (GILBODY and PERKIN), T., 1046.
- Depolarisation.** See Electrochemistry.
- Desmotropism** of β -methyl- β -butylene (trimethylethylene) $\beta\gamma$ -nitrosite (SCHMIDT), A., i, 581; (HANTZSCH), A., i, 734.
 in the pyridine series (ERRERA), A., i, 115.
- Desmotroposantoin.** See under Santonin.
- Desmotropy** of camphorquinonephenylhydrazone (LAPWORTH and HANS), T., 1508; P., 1902, 143, 146.
 between acetyl and hydroxyvinyl groups (WIDMAN), A., i, 374.
- Desylacetic acid**, lactones of (THIELE and STRAUS), A., i, 154.
- Desylamine** and its phenylhydrazone, and **Desylphenylcarbamide** (PSCHORR and BRÜGEMANN), A., i, 684.
- Desyleinnamic acid** and its methyl ester, **Desyleneacetic acids**, α - and β -, and **Desylenemalonic acid**, ethyl ester (THIELE and STRAUS), A., i, 154.
- Deweyleite** from New Jersey (CHESTER), A., ii, 611.
- Dextrins**, action of iodine and of other oxidisers in the hydrolysis of (HALE), A., i, 533.
- Dextrose** (*d-glucose, grape sugar*), from crocin and picrocrocin (KASTNER), A., i, 685.
- of muscular origin (CADÉAC and MAIGNON), A., ii, 517.
- magnetic rotation of (PERKIN), T., 188; P., 1901, 256.
- does, arise from cellulose in digestion? (LUSK), A., ii, 273.
- isomeric acetyl halogen derivatives of (FISCHER and ARMSTRONG), A., i, 263.
- subcutaneous injections of, and protein metabolism (SCOTT), A., ii, 337.
- test for, in urine (RIEGLER), A., ii, 585.
- the copper and picric acid test for, in urine (LYONS), A., ii, 179.
- nickel salts as a test for, in urine (DUYK), A., ii, 54.
- osazone test for the detection of, in urine (ESCHBAUM), A., ii, 585.
- the phenylhydrazine test for, in urine (LYONS), A., ii, 703.
- clinical detection and estimation of, in urine (RUINI), A., ii, 233.
- estimation of, by fermentation (LYONS), A., ii, 704.
- estimation of, gravimetrically (LAUENSTEIN), A., ii, 179.
- estimation of, by Soltsien's method (SCHUMANN), A., ii, 631.
- estimation of, in urine and in organic liquids (REALE), A., ii, 234.
- separation of, from galactose by *Saccharomyces Ludwigi* (THOMAS), A., ii, 344.
- Dextrose- β -naphthylhydrazones**, isomeric (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 747.
- Dextrosephenylmethylhydrazone** (NEUBERG), A., i, 264.
- Dextrose-ureide** and its pentacetyl and tetrabenzyoyl derivatives (SCHOORL), A., i, 83.
- Dhurrin** and **Dhurrinic acid** from *Sorghum vulgare* (DUNSTAN and HENRY), A., ii, 578.
- Diabetes** (*glycosuria*), colour reactions of red blood corpuscles in (LE GOFF), A., ii, 544.

- Diabetes (*glycosuria*),** of muscular origin (CADÉAC and MAIGNON), A., ii, 466. elimination of chlorides and phosphates in experimental (LÉPINE and MALTET), A., ii, 678.
- chromic acid (KÓSSA), A., ii, 219.
- phloridzin (LUSK), A., ii, 162; (LOEWI), A., ii, 277.
- in cats (ARTEAGA), A., ii, 38.
- formation of phenol and indoxylin, and their relation to glycuronic acid excretion (LEWIN), A., ii, 272; (MAYER), A., ii, 520.
- suprarenal (BLUM), A., ii, 575.
- Diacetanilide,** transformation of, into acetyl-*p*-aminoacetophenone (CHATTAWAY), P., 1902, 173.
- Diacetanilide,** 2:4:6-tribromo-3-nitro- (ORTON), T., 503; P., 1902, 73.
- 2:6:4-chlorobromonitro-, 2:3:4:6-tetrabromo-, and 2:4-dibromo-6-nitro- (ORTON), T., 497; P., 1902, 59.
- Diacetoneamino-oxime** and its salts (KOHN), A., i, 349.
- Diacetonitrile,** preparation of, and cyano- ψ -lutidostyryl derivatives from (MOIR), T., 100; P., 1901, 69.
- Diacetophenone-*p*-urazine** (PURGOTTI and VIGANÒ), A., i, 322.
- 2:4'-Diacetoxybenzophenone-aniline** hydrochloride (DIMROTH and ZOEPFRTZ), A., i, 293.
- Diacytethyl**, preparation of, and its acetyl, phenylmethane, *p*-nitrophenylhydrazone, oxime and semicarbazone derivatives and its polymeride (DIELS and JOST), A., i, 744.
- Diacetyl-acetylhydrazone and -semicarbazone** (DIELS), A., i, 205.
- 3:5-Diacetylamino-9-anilino-phenazoxonium** anhydride and **3:5-Diacetyl-amino-9-methoxyphenazoxonium** methosulphate (KEHRMANN and THOMAS), A., i, 567.
- Diacetyl-*l*/aminobenzylidenephenoxyhydrazone** (SACHS and KEMPF), A., i, 682.
- 3:5-Diacetylamino-9-methoxyphenazothionium** methosulphate and dichromate (KEHRMANN and SCHILD), A., i, 570.
- 3:5-Diacetylamino-phenazothione** and -thiodiphenylamine ferrichloride (KEHRMANN and SCHILD), A., i, 569.
- 3:5-Diacetylamino-phenoxazine,** and -phenazoxonium bromide (KEHRMANN and THOMAS), A., i, 567.
- 4:6-Diacetyltribromocoumarin** (TILDEN and BURROWS), T., 510; P., 1901, 217.
- 77-Diacetylbutyric acid**, ethyl ester (MARCH), A., i, 258.
- 77-Diacetylbutyric acid**, methyl and ethyl esters, and their copper derivatives, and dioxime of the ethyl ester (MARCH), A., i, 707.
- Diacetylidianisidine** (PAWLEWSKI), A., i, 209.
- Diacetyldisemicarbazone** (POSNER), A., i, 82.
- B3-Diacetyl- α -methylpropionic acid**, ethyl ester, and its copper derivative, disemicarbazone and dioxime (MARCH), A., i, 257, 706.
- Diacetyl- β -naphthylhydrazoxime** (PONZIO), A., i, 191.
- Diacytethylthormitric acid** (PICTET and GENEQUAND), A., i, 584.
- Diacetylphenylhydrazone-semicarbazone** (POSNER) A., i, 82.
- Diacetylphenylmalonamide** (CAMPIS), A., i, 397.
- 4:6-Diacetyl-5-phenyl-3-methylcyclohexan-3-ol-1-one** (RABE and ELZE), A., i, 711.
- Diacytethyl-*o*- and *p*-tolylhydrazoximes** (PONZIO), A., i, 190.
- Di- β -alkylisobutyl ketones,** dithio- (POSNER), A., i, 298.
- as-Dialkyl-*p*-phenylenediamines,** sulphonie and carboxylic acids of (KALLE & CO.), A., i, 398.
- Di- β -alkylsulphoneisobutyl ketones** (POSNER), A., i, 298.
- Dialkylthiourethanes**, formation of, and their derivatives (DELÉPINE), A., i, 353.
- Dialysis.** See under Diffusion.
- Diamines** from phellandrene nitrites (WALLACH and BÖCKER), A., i, 725. substituted, relative difference in basicity of the two amino-groups of (BÜLOW and LIST), A., i, 237.
- aminobenzyl cyanides and iminobenzoyl cyanides from (SACHS and GOLDMANN), A., i, 781.
- m-Diamines**, aromatic, influence of substitution on the reactivity of (MORGAN), T., 650; P., 1902, 87.
- tertiary, action of diazonium salts and of formaldehyde on (MORGAN), T., 656; P., 1902, 87.
- Diammonium compounds**, cyclic (SCHOLTZ), A., i, 835.
- Diamond crystals**, formation of, from gas carbon (LUDWIG), A., ii, 70, 451.
- Di-*p*-isooamylphenyliodonium salts** (WILLGERODT and DAMMANN), A., i, 19.
- B3-Diamylsulphone-butane- γ -one, - γ -methylpentane- δ -one, and -pentane- γ - and - δ -ones** (POSNER), A., i, 220.
- B3-Diamylthiopentane-3-one** (POSNER), A., i, 221.

- Diamylthiolestilbene** (POSNER), A., i, 220.
Dianilinomalic acid, methyl ester and aniline salt (CONRAD and REINBACH), A., i, 211, 529.
3:4-Dianilino- β -naphthaphenazothionium anhydride (KEHRMANN, GRESSLY, and MISSLIN), A., i, 569.
3:9-Dianilinophenazothionium chloride (KEHRMANN and HERRMANN), A., i, 568.
 and its acetyl derivative (AKTIENGESELLSCHAFT FÜR ANILINFABRICATION), A., i, 496.
3:9-Dianilinophenazoxonium chloride and its anhydro-base (KEHRMANN and STAMPA), A., i, 567.
2:6-Dianilinopyridine-4-carboxylic acid and its methyl ester and anilide (BITTNER), A., i, 823.
Di-o-anisylidihydrazonecyanoacetic acid, methyl esters (FAVREL), A., i, 330.
Di-o-anisylidihydrazonemalonic acid, esters (FAVREL), A., i, 507.
Di-o-anisylethylenedisulphone (TRÖGER and BUDDE), A., i, 776.
Di-o- and -m-anisylideneacetones (v. BAUER and VILLIGER), A., i, 770.
Di-p-anisylideneacetone, and its salts (v. BAUER and VILLIGER), A., i, 381.
Dianisylphenylmethane (v. BAUER and VILLIGER), A., i, 381.
Diaphragms, behaviour of, during electrolysis (HITTOFF), A., ii, 59.
Diarylcaramides, formation of, from arylhydroxylamines (BAMBERGER and DESTRAZ), A., i, 538.
Diastase, influence of carbon dioxide on the action of (MOHR), A., i, 410.
 ungerminated barley, action of, on starch (BAKER), T., 1177; P., 1902, 134.
 malt, experiments with (LING and DAVIS), A., i, 732.
 pancreatic, and its zymogen (VERNON), A., ii, 336.
 influence of various reagents on the activity of (GRÜTZNER and WACHSMANN), A., ii, 614.
Diastases, new, in urine (POZZI-ESCOLT), A., i, 655.
 differences between (VERNON), A., i, 513.
 source of error in the examination of (POZZI-ESCOLT), A., i, 513.
Diazoacetamide and *iso***Diazoacetamide** (SILBERRAD), T., 603; P., 1902, 44.
 ψ -**Diazoacetamide**. See Azoacetamide, imino-.
- Diazo-p-acetaminobenzene chloride**, rate of decomposition of (CAIN and NICOLL), T., 1436; P., 1902, 186.
Diazoacetic acid, polymerisation products from (SILBERRAD), T., 598; P., 1902, 44.
 esters, action of, on phenylacetylene (BUCHNER and LEHMANN), A., i, 236.
Diazoamines, influence of substitution on the formation of (MORGAN), T., 86, 1376; P., 1901, 236; 1902, 185.
2-Diazoamino-1-chloronaphthalene (MORGAN), T., 98, 1381; P., 1901, 237; 1902, 185.
Diazoamino-compounds, transformation of, into aminoazo-compounds (CHATTAWAY), P., 1902, 175.
Diazoaminotetrahydro- β -naphthalene (SMITH), T., 905; P., 1902, 137.
Diazoaminotoluenes (MEHNER), A., i, 577.
a-Diazoanthraquinone, bromo- and chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 721.
1-Diazoanthraquinone-2-sulphonic anhydride (WACKER), A., i, 698.
Diazobenzene, action of, on acetoacetic acid and its ethyl ester, and on ethyl benzenearoacetoacetate (BAMBERGER and WHEELWRIGHT), A., i, 406.
 chloride, and *o*-, *m*-, and *p*-nitro-, rates of decomposition of (CAIN and NICOLL), T., 1415; P., 1902, 186.
 hydroxide, *p*-nitro-, action of sulphur dioxide on (EKBOM), A., i, 327.
Diazobenzene-p-sulphonic acid, rate of decomposition of (CAIN and NICOLL), T., 1429; P., 1902, 186.
Diazo-2:6-dibromoanisoles, potassium salts, anti- and *syn*- (HANTZSCH and POHL), A., i, 843.
Diazo-chlorides, action of ethyl β -chloroacetoacetate on (FAVREL), A., i, 644.
Diazo-compounds, rate of decomposition of (CAIN and NICOLL), T., 1412; P., 1902, 186, 244.
 action of, on the esters of 2-acyl-1:3-ketonic acids (BÜLOW and HAIDER), A., i, 325.
 action of hypophosphorous acid on (MAI), A., i, 245.
 new decompositions of (BIEHRINGER and BUSCH), A., i, 575.
 coupling of, with toluidines (MEHNER), A., i, 576.
 quinonoid, and the so-called triazolens (HANTZSCH), A., i, 324.
Diazogallic acid, ethyl ester (POWER and SHEDDEN), T., 77; P., 1901, 242.

- Diazo-group**, replacement of the, by amidogen (WACKER), A., i, 698.
- antiDiazo-hydrates**, isomerism of, with primary nitrosoamines (HANTZSCH and POHL), A., i, 842.
- 2-Diazonaphthalene-8-sulphonic anhydride**, 6-nitro- (JACCHIA), A., i, 717.
- Diazoisonitrosomethyluracil** and its reduction (WOLLERS and BEHREND), A., i, 843.
- Diazonium (*benzendiazonium*) chlorides**, action of, on acetylacetone and its substituted derivatives (FAVREL), A., i, 507.
- action of acylcyanoacetic esters on (FAVREL), A., i, 406.
- action of, on alkylacetylacetones (FAVREL), A., i, 508.
- action of cyanoacetic esters and their derivatives on (FAVREL), A., i, 329.
- action of, on malonic esters (FAVREL), A., i, 506.
- action of, on substituted malonic esters (FAVREL), A., i, 507.
- action of, on methylenedi-2-hydroxy-3-naphthoic acid (STROHBACH), A., i, 161.
- cyanide, solid (EULER and HANTZSCH), A., i, 191.
- salts, action of, on aromatic amines (MORGAN), T., 86, 1376; P., 1901, 236; 1902, 185.
- action of, on *tert.m*-diamines (MORGAN), T., 656; P., 1902, 87.
- decomposition of (HANTZSCH), A., i, 329.
- decomposition of, by alcohol (HANTZSCH and JOCHEM), A., i, 62.
- aromatic, action of ammoniacal cuprous oxide on (VORLÄNDER and MEYER), A., i, 328.
- Diazo-salts**, action of, on desmotropo-santonin and -santonous acid (WEDEKIND and SCHMIDT), A., i, 699.
- Diazothiosulphonates**, supposed isomerism of (DYBOWSKI and HANTZSCH), A., i, 249.
- Diazotisation of 2:3-dinitro-p-anisidine** (MELDOLA and EYRE), T., 988; P., 1902, 160.
- Diazotoluene chlorides**, *o*-, *m*-, and *p*-, rate of decomposition of (CAIN and NICOLL), T., 1422; P., 1902, 186.
- Dibenzenesulphonimide** (FARBEWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 364.
- Dibenzophenone-p-urazine** (PURGOTTI and VIGANO), A., i, 322.
- Dibenzoyl-p-aminodiphenylamine** (BIEHRINGER and BUSCH), A., i, 575.
- Dibenzoylamylhydrazine** (STOLLÉ), A., i, 57.
- Dibenzoylisobutylhydrazine** (STOLLÉ), A., i, 57.
- Dibenzoyldiacetyltetraoxydiphenanthryl** (WERNER), A., i, 629.
- Dibenzoyldiantranilylmethane** (HELLER and FIESSELMANN), A., i, 780.
- Dibenzoyldiphenylene** (BIEHRINGER and BUSCH), A., i, 575.
- Dibenzoylethylenes**, *cis*- and *trans*- (PAAL and SCHULZE), A., i, 228.
- Dibenzoylhydrazobenzene** and its isomerides (BIEHRINGER and BUSCH), A., i, 575; (FREUNDLICH), A., i, 697.
- Dibenzoyl-*o*- and *p*-hydrazotoluene**, and the isomeride of the ortho-compound (BIEHRINGER and BUSCH), A., i, 576.
- Dibenzoyliminothiobenzyl** ethylene ether (WHEELER and BEARDSLEY), A., i, 502.
- Dibenzoylmesitylene**, preparation of, and its derivatives (MILLS and EASTERFIELD), T., 1315; P., 1902, 167.
- Dibenzoylmesitylenic acids**, *s*- and *as*- and their salts, oxidation, and rates of esterification (MILLS and EASTERFIELD), T., 1317; P., 1902, 167.
- Dibenzoyl nitrogen chloride** (CHATTAWAY), P., 1902, 165.
- Dibenzoyloxydiphenanthrylene** (WERNER), A., i, 629.
- 2:5-Dibenzoyloxyquinone** (KNOEVENAGEL and BÜCKEL), A., i, 106.
- Dibenzoyltartaric acid**, *di.sec.octyl* ester (McCRAE), T., 1221; P., 1902, 182.
- Dibenzoyl-o-tolidine** (BIEHRINGER and BUSCH), A., i, 576.
- Dibenzoyltrimesic acid** and its salts (MILLS and EASTERFIELD), T., 1322; P., 1902, 168.
- Dibenzoyluvitic acids**, *s*- and *as*- and their salts (MILLS and EASTERFIELD), T., 1321; P., 1902, 167.
- Dibenzylymono- and di-sulphides**, *m-di-cyano-* (EHRICH), A., i, 25.
- Dibenzylacetone -dialkylsulphones** and *-di-thiophenyl* (POSNER), A., i, 298.
- Dibenzylallylamine** and its salts (v. BRAUN and SCHWARZ), A., i, 365.
- Dibenzylamine**, *di-m-cyano*- and its salts (EHRICH), A., i, 25.
- 5:10-Dibenzylanthracene** and bromo- (LIPPmann and POLLAK), A., i, 754.
- Dibenzylhydrazine**, *as-o-diamino*- and its hydrochloride and triacetyl derivative (ULMER), A., i, 503.
- Dibenzylideneacetone** (v. BAEYER and VILLIGER), A., i, 769.

- Dibenzylideneacetone**, halochromy of (v. BAEYER and VILLIGER), A., i, 380.
methoxy derivatives, basicity of (v. BAEYER and VILLIGER), A., i, 770.
- Dibenzylideneacetone-acetoacetic acid**, ethyl ester (KNOEVENAGEL and SPEYER), A., i, 227.
- Dibenzylideneelävulic acid** (m. p. 177-178°) (THIELE, TISCHBEIN, and LOS-SOW), A., i, 155.
- Dibenzyl ketone**, isomeric additive compounds of, with benzylidene-*p*-toluidine, *m*-nitrobenzylideneaniline, and benzylidene-*m*-nitroaniline (FRANCIS), T., 441; P., 1902, 53.
- Dibenzylmesitylene** (MILLS and EASTERFIELD), T., 1323.
- Dibenzylmethylcyclohexanone** (TÉTRY), A., i, 470.
- Dibenzyl methyl ketone** and its oxime (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- Beta-Dibenzylsulphone- γ -methylpentane- δ -one, and -pentane- γ - and - δ -ones** (POSNER), A., i, 221.
- Dibenzylthiolstilbene** (POSNER), A., i, 220.
- Dibromides**, $C_6H_{2n}Br_2$, action of ethyl sodiomalonate on (IPATIEFF), A., i, 588.
- Di-sec.butyl** (*dimethyl- $\gamma\delta$ -hexane*). See Octane.
- Dibutyl alcohol**. See Octyl alcohol.
- Diisobutyl ketone**, and its oxime and semicarbazone (NEF), A., i, 7.
- Di-*p*-tert.butylphenyliodonium** hydroxide and salts and their iodo-derivative (WILLGERODT and RAMPACHER), A., i, 18.
- Dibutylanilide**, α -dithio-, and its copper derivative (BECKURTS and FRERICHS), A., i, 765.
- Dibutyrolactone**, trithio-, and its derivatives (WEIGERT), A., i, 10.
- Di-*n*- and -*iso*-butyryl** and their dioximes (PONZIO), A., i, 134.
- Dicamphylthiocarbamide** (v. BRAUN and RUMPF), A., i, 275.
- Dicarbanilinocarbanilinodixylylmethylenediamine** (SENIER and GOODWIN), T., 283; P., 1902, 12.
- Dicarbanilinodiphenylmethylenediamine** (SENIER and GOODWIN), T., 283; P., 1902, 12.
- Dicarboxyaconic acid** (*propylenepentacarboxylic acid*), isoimino-, ethyl ester (ERRERA and PERCIABOSCO), A., i, 116.
- m*-Dicarboxybenzyl mono- and di-sulphide** (EHRLICH), A., i, 25.
- Dicarboxyglutaconic acid** (*propylene-tricarboxylic acid*), ethyl ester, action of ethyl chloroacetate on (GUTHZEIT and JAHN), A., i, 658. action of halogen-substituted esters of fatty acids on (GUTHZEIT and ENGELMANN), A., i, 742.
- Dicarboxyglutaric acid** (*propanetetracarboxylic acid*), ethyl ester, action of amino-bases on (GUTHZEIT and JAHN), A., i, 658. action of halogen-substituted esters of fatty acids on (GUTHZEIT and ENGELMANN), A., i, 743.
- Dicarboxyphenylarsenic acid** (MICHAELIS and SEEMAN), A., i, 416.
- 3:5-Dicarboxypyrrrole-2:4-diacetic acid** and its ethyl ester (FEIST), A., i, 489.
- Dichromic acid**. See under Chromium.
- Dichrysarobin** and its methyl ether, and their acetyl compounds (JOWETT and POTTER), T., 1580; P., 1902, 192.
- Di- ψ -cumylethylenedisulphone** (TRÖGER and BUDDÉ), A., i, 775.
- Di- ψ -cumylformamidine** and its hydrochloride, and reaction with ethyl cyanoacetate (DAINS), A., i, 602.
- Diehydrocampholene** (BÉHAL), A., i, 419.
- Dielectric constants**. See Electrochemistry.
- Dietyltra spectabilis** (GADAMER), A., i, 52.
- Diet** and metabolism (GOODBODY, BARDSWELL, and CHAPMAN), A., ii, 513.
- 1:3-Diethoxybenzene**, 4:6-dinitro- (BLANKSMA and MEERUM TERWOGT), A., i, 715.
- 3:4-Diethoxybenzylidene-*m*-nitroacetophenone** (RUPE and WASSERZUG), A., i, 40.
- 2:4-Diethoxy-3':5'-dimethoxybenzoylacetophenone** (v. KOSTANECKI and WEINSTOCK), A., i, 816.
- Diethoxydimethyl ether** (COOPS), A., i, 77.
- Diethoxyhydrindone**, bromo- and chloro- (GLAWE), A., i, 782.
- Diethyl chlorocarbonate**, *di- $\alpha\beta\beta\beta$ -tetra-chloro-* (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 78.
- Diethylaminoacetic acid**, methyl ester, and its salts (WILLSTÄTTER), A., i, 267.
- Diethylaminoacetonitrile** and its salts (KLAGES), A., i, 355.
- 3-Diethylaminocridine**, synthesis of (ULLMANN and BAEZNER), A., i, 694.
- α -Diethylaminopropiononitrile** and its salts (KLAGES), A., i, 355.
- 3:4-Diethylaminotoluene** and its hydrochloride (FISCHER, RIGAUD, and BECKER), A., i, 401.

- Diethylaniline**, *p*-nitroso-, condensation of, with 1-phenyl-3-methylpyrazolone (SACHS and BARSCHALL), A., i, 503.
- Diethylarsinibenzoic acid**, *p*-thio-, and *p*-Diethylarsinobenzoic acid and its salts (MICHAELIS and EPPENSTEIN), A., i, 414.
- Diethylcarbinol**. See Amyl alcohol.
- Diethyl diketone** (*dipropionyl*) and its dioxime (PONZIO), A., i, 134.
- 3:3'-Diethyldiphenyl**, 4:4'-diamino-, and its isomeride, and their benzylidene derivatives, dihydrochlorides, and picrates, and dyes from their diazotisation (SCHULTZ and FLACHSLÄNDER), A., i, 751.
- Diethylenediaminechromium salts**, *dithiocyanato* (PFEIFFER), A., i, 138.
- s-aa-Diethylglutaric acid** (*heptanedicarboxylic acid*) (REFORMATSKY), A., i, 588.
- Diethylglycollic acid**, ethylester, phenylurethane of (LAMBLING), A., i, 756.
- Diethylindole**, preparation of, from ethylpyrrole (DENNSTEDT), A., i, 396.
- Diethylmalonamide** (FISCHER and DILTHEY), A., i, 270.
- Diethyl-*β*-naphthylamine** and its salts (REYCHLER), A., i, 757.
- Diethyl-*α*-naphthylamine-5-sulphonic acid** (FUSSGANGER), A., i, 280.
- Diethyloxanilide** (LAMBLING), A., i, 756.
- Diethylthiolstilbene** (POSNER), A., i, 220.
- Diethyl-*o*-toluidine**, 4-amino- and 4-nitro (ULLMANN, ROZENBAND, MÜHLHAUSER, and GRETHER), A., i, 241; (MÖHLAU, KLIMMER, and KAHL), A., i, 839.
- Diethyl-*o*-toluidine-4-sulphonic acid** and its potassium salt (MÖHLAU, KLIMMER, and KAHL), A., i, 839.
- Diffusion**, study of (THOVERT), A., ii, 599.
application of optical observations to the study of (THOVERT), A., ii, 197, 384.
of hydrogen through platinum (WINKELMANN), A., ii, 552.
retrograde, of electrolytes (THOVERT), A., ii, 445.
- Dialysis** experiments with metallic hydroxides and sulphides (HERZ), A., ii, 608.
- Osmotic exchanges** (NATHANSOHN), A., ii, 280.
pressure, equation for, in concentrated solution (WIND), A., ii, 62.
high, preparation of cells for the measurement of (MORSE and FRAZER), A., ii, 553.
- Diffusion**:—
- Osmotic pressure** of some solutions calculated from the E.M.F. of concentration elements (GODELEWSKI), A., ii, 445.
- of the blood in crayfish (FREDERICQ), A., ii, 151.
- of dog's submaxillary saliva (NOLFE), A., ii, 152.
- properties of colloidal solutions (MOORE and PARKER), A., ii, 413.
- Dimortal tartrate**. See Dimethylene tartrate.
- Difurfurylcarbamide** (CURTIUS and LEIMBACH), A., i, 302.
- Digestibility** of food in the stomach (FERMI), A., ii, 216.
comparative, of human milk and its substitutes (TUNNICLIFFE), A., ii, 673.
- Digestion**, does dextrose arise from cellulose in? (LUSK), A., ii, 273.
in the small intestine (KUTSCHER and SEEMANN), A., ii, 335, 571.
duodenal, of proteid (FERRAI), A., ii, 412.
gastric (KRÜGER), A., ii, 33.
toxic substance produced by (CASSART and SAUX), A., ii, 216.
the end products of (LANGSTEIN), A., ii, 515.
in new-born dogs (GMELIN), A., ii, 571.
- pancreatic, influence of the spleen on (MENDEL and RETTGER), A., ii, 615.
occurrence of *p*-hydroxyphenylethylamine in (EMERSON), A., ii, 271.
- peptic (ZUNZ), A., ii, 672.
artificial, in the presence of alcohol (THIBAULT), A., i, 411.
end products of (LANGSTEIN), A., ii, 272.
of fibrin (PICK), A., ii, 673.
- proteid, and bile (ROSENBERG), A., ii, 216.
in Octopods (COHNHEIM), A., ii, 572.
tryptic, influence of hydroxides of barium, calcium, and strontium on (DIETZE), A., ii, 272.
product of (HOPKINS and COLE), A., i, 193.
- of sucrose (WIDDICOMBE), A., ii, 335.
- Digitatinum germanicum**, extraction of the valuable constituents of (KILIANI), A., i, 46.
- Digitic acid** and **Digitoxic acid** and its oxime (KILIANI and MERK), A., i, 47.
- Digitoflavone**, identity of, with luteolin (KILIANI and MAYER), A., i, 47.
- Digitogenic acid** and its acetyl derivative and oximes, and **Digitogenin** (KILIANI and MERK), A., i, 46.

- Digitonin** (KILIANI; KILIANI and MERK), A., i, 46.
Diglyceryl triphthalate (SMITH), A., i, 159.
Diglycollanilide, thio- (BECKURTS and FRERICHS), A., i, 764.
Dihexyl alcohol, constitution of (GUERBET), A., i, 335.
Dicyclohexyl (KURSANOFF), A., i, 360.
Dihydroaesculetin (LIEBERMANN and LINDENBAUM), A., i, 785.
Dihydroberberine (GADAMER), A., i, 556.
Dihydrobrazilic acid and its lactone (PERKIN), T., 221; P., 1901, 258.
Dihydrobrazilinic acid and dinitro-lactones of (PERKIN), T., 1038; P., 1901, 258.
Dihydrocampholene, α -amino-, and its salts, carbamide, and ureide (BLAISE and BLANC), A., i, 300.
 α -**Dihydrocampholenic acid** and its bromo-derivative (BLAISE and BLANC), A., i, 300.
Dihydro- α -campholytic acid, constitution of (NOYES and PATTERSON), A., i, 590.
i-**Dihydrocampholytic acid** and its amido-derivative (NOYES and PATTERSON), A., i, 590.
Dihydrocamphoric acid, identity of, with α -methyl- δ -isopropyladipic acid (MARTINE), A., i, 629.
Dihydrocarboxytil-4-acetic acid and 7-nitro-, and their methyl esters and salts (SCHROETER and MEERWEIN), A., i, 545.
Dihydrocarvylxanthamides (TSCHUGAEFF), A., i, 630.
Dihydrocopazoline and its salts (GABRIEL and COLMAN), A., i, 841.
Dihydrocornicularic acid and its unsaturated lactones (THIELE and STRAUS), A., i, 158.
Dihydrofencholenic acid, and its amide, lactam and nitrile (MAHLA), A., i, 107.
Dihydrohaematoxylinic acid, lactone of, and its salts (PERKIN and YATES), T., 244.
Dihydrolaurolactone (BREDT, Houben, and LEVY), A., i, 375.
Dihydrolutidinedicarboxylic acid, isomeric esters, constitution of (KNOEVENAGEL and FUCHS), A., i, 565.
Dihydro-2-lutidone-3:5-dicarboxylic acid, ethyl ester (KNOEVENAGEL and BRUNSWIG), A., i, 641.
 $\Delta^{1:5}$ -**Dihydromesitylene** (WALLACH and BÖTTICHER), A., i, 798.
Dihydro- β_1 - β_2 -naphthaphenazine, *lin-* (HINSBERG), A., i, 238.
Dihydronaphthazines, *lin-*, and *lin-ang-* (HINSBERG), A., i, 239.
Dihydrophenanthrene, nitro- (SCHMIDT), A., i, 715.
Dihydroisophorone. See 3:5:5-Trimethylcyclohexanone.
Dihydroisophoryl glycols (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 299.
Dihydropulegenone and its oxime and semicarbazone (WALLACH and THEDE), A., i, 724.
Dihydroresorcin, action of phosphorus haloids on (CROSSLEY and LE SUEUR), P., 1902, 238.
s-N-**Dihydrotetrazenedicarboxylamide** (SILBERRAD), T., 605; P., 1902, 44.
 $\Delta^{1:3}$ -**Dihydrotoluene**, oxidation of (HARRIES), A., i, 361, 378.
 $\Delta^{1:5}$ -**Dihydro-m-tolylacetic acid** and its ethyl ester, silver salt, and amide (WALLACH and BÖTTICHER), A., i, 798.
Dihydroxyacetonephenylmethylosazone (NEUBERG), A., i, 264.
Dihydroxyanthranol and its triacetate (SCHROEDORFF), A., i, 773.
Dihydroxyanthranols, 1:4- and 1:5-, and their triacetates (PLEUS), A., i, 773.
2:3-Dihydroxyanthraquinone. See Hystazarin.
4:4'-Dihydroxybenziloxazones, 3:3'-di- and 3:5:3':5'-tetra-bromo-, 3:5:3':5'-tetraiodo-, and 3:3'-dinitro- and their acetates (BILTZ and AMME), A., i, 468.
Dihydroxybenzylideneaniline (DIMROTH and ZOEPPRITZ), A., i, 294.
2:4-Dihydroxybenzylidenemalononitrile (WALTER), A., i, 373.
3:4-Dihydroxybenzylidene-m-nitroacetophenone and its diacetyl derivative (RUPE and WASSERZUG), A., i, 40.
Dihydroxybutyloxamide (TORDOIR), A., i, 265.
Dihydroxycampholenolactone (BÉHAL), A., i, 419.
5:7-Dihydroxychromone (v. KOSTANECKI and DE RUIJTER DE WILDT), A., i, 303.
2:6-Dihydroxychinomeric acid, ethyl ester (ERRERA and PERCIABOSCO), A., i, 116; (RUHEMANN), A., i, 178.
Dihydroxydibenzylmesitylene (MILLS and EASTERFIELD), T., 1323.
2:2'-Dihydroxydiphenyl. See 2:2'-Diphenol.
Dihydroxy-2:4-diphenyl-1:4-benzopyranols, 5:7-, 6:7-, and 7:8-, and their salts and triacetyl derivatives (BÜLOW and v. SICHERER), A., i, 112.
2:4'-Dihydroxydiphenylmethane and its diacetyl and dibenzoyl derivatives and dimethyl and diethylethers (WAGNER), A., i, 448.

- Di-p-hydroxydiphenyl-m-phenylenediamine**, 4-chloro-2:6-dinitro- (BADISCHE ANILIN- & SODA-FABRIK), A., i, 497.
- 2:2'-Dihydroxydiphenyl-5:5'-di-** and -3:3':5:5'-tetra-sulphonic acids and their salts (DIELS and BIBERGEIL), A., i, 220.
- Dihydroxy-eosins** and -fluorescins (LIEBERMANN and WÖBLING), A., i, 546.
- Dihydroxyhexane**, *dibromo-* (DUDEN and LEMME), A., i, 337.
See also β -Methylpentane- $\beta\delta$ -diol.
- 3:4-Dihydroxyhydratropic acid** (BOUGAULT), A., i, 453.
- 1:5-Dihydroxyhydroanthranol** and its triacetate (PLEUS), A., i, 773.
- 1:1'-Dihydroxy-6:6'-ketoethylenedi-naphthylamine-3:3'-disulphonic acid** (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 398.
- Dihydro-m-xylene** and its oxidation (HARRIES), A., i, 361.
- Dihydroxylodiaquodipyridinechromium salts.** See under Chromium.
- 4:7-Dihydroxy-6-methoxydihydroquinoline-5-carboxylic acid** (BOOK), A., i, 465.
- Dihydroxymethoxymethylanthra-quinone.** See Methylnataloe-emodin.
- Dihydroxymethoxymethylbenzene**, and its compound with diazoaminobenzene (BOEHM), A., i, 37.
- Dihydroxymethylert. butylallylcarbinal**, action of sulphuric acid on (PETSCHNIKOFF), A., i, 338.
- $\gamma\delta$ -Dihydroxy- γ -methyl- γ -ethylpyrotar-taric acid** (STOBBE, STRIGEL, and MEYER), A., i, 461.
- Dihydroxymethylheptanone** (HARRIES), A., i, 345.
- Dihydroxymethylcyclohexanone** (HARRIES), A., i, 361, 378.
and its phenylhydrazone and semi-carbazone (HARRIES), A., i, 378.
- Dihydroxymethylxanthine**, *dinitro-* (BORSCHE), A., i, 836.
- 1:8-Dihydroxynaphthaketones** and their diacetyl derivatives (LANGE), A., i, 381.
- 2:3-Dihydroxynaphthalene** and its methyl and ethyl ethers, 1-mono- and 1:4-di-amino-, and -6:8-disulphonic acid (FRIEDLÄNDER and SILBERSTEIN), A., i, 793.
- 2:8-Dihydroxynaphthalene-3:6-disulphonic acid** (FRIEDLÄNDER and SILBERSTEIN), A., i, 794.
- Dihydroxynonane** (GRIGNARD), A., i, 421.
- 9:10-Dihydroxyphenanthrene**, and its diacetate (PSCHORR and SCHÄFTER), A., i, 672.
- 9:10-Dihydroxyphenanthrene**, and its nitro-derivatives and their acetates and benzoates (SCHMIDT and KÄMPF), A., i, 797.
- Di-9-hydroxyphenanthryl-10-amine** (SCHMIDT), A., i, 757.
- Dihydroxyphenoxide**, dinitro-, and its salts (HILLYER), A., i, 50.
- Dihydroxy-2-phenyl-1:4-benzopyranols**, 5:7- and 7:8-, and their salts (BÜLOW and v. SICHERER), A., i, 114.
- $\alpha\beta$ -Dihydroxy- α -phenyl- γ -benzylbutyro-lactone** and its diacetyl derivative (THIELE and STRAUS), A., i, 158.
- Dihydroxy-2-phenyl-4-benzylidene-1:4-benzopyranols**, 5:7-, 6:7-, and 7:8-, and their hydrochlorides, picrates, and acyl derivatives (BÜLOW and GROTON-SKY), A., i, 554.
- Di-3- and - ω -hydroxy-2-phenylquinoxaline**, 6-(or 7)-chloro-, and its -sulphonic acid (v. KORCZYNSKI and MARCHLEWSKI), A., i, 647.
- Dihydroxyisopropylhypophosphorous acid** and its salts, esters, and diacyl derivatives (MARIE), A., i, 71.
- 2- $\alpha\beta$ -Dihydroxyisopropylquinoline**, 3-chloro-, and its salts (KOENIGS and STOCKHAUSEN), A., i, 693.
- 2:6-Dihydroxypyridine-3:4-dicarboxylic acid.** See Dihydroxycinchromeric acid.
- 2:6-Dihydroxypyridine-3:4:5-tricarboxylic acid**, ethyl ester (ERRERA and PERCIABOSCO), A., i, 116.
- 2:4-Dihydroxyquinoline** (CAMP), A., i, 178.
- Dihydroxyvalerolactone** and its diacetyl derivative (THIELE, TISCHBEIN, and LOSSOW), A., i, 156.
- Di-indigotin** (MOIR), P., 1902, 194.
- Diindoxylic anhydride**, and its β -naphthyl and *p*-tolyl derivatives (CONRAD and REINBACH), A., i, 211.
- 2:4-Diketo-5- and -3:5-diphenyltetra-hydrothioazole** (WHEELER and JOHN-SON), A., i, 761.
- p*-Diketohexahydrotetrazine.** See *p*-Urazine.
- o*-Diketomethylcyclohexane** and its phenylhydrazone and semicarbazones (HARRIES), A., i, 378.
- Diketones**, action of organo-magnesium compounds on (ZELINSKY), A., i, 593.
action of mercaptans on (POSNER), A., i, 220.
condensation reactions of (POSNER), A., i, 82.
- o*-Diketones**, formation of, from ketones (PONZIO and BORELLI), A., i, 659.
fatty, preparation of (PONZIO), A., i, 134.

- $\alpha\beta$ -Diketones**, action of phenylhydrazine on (SMITH and McCoy), A., i, 645.
- β -Diketones** (LESER), A., i, 261. synthesis of (MOUREU and DELANGE), A., i, 164, 253.
- δ - $(1:5)$ -Diketones** (RABE and ELZE), A., i, 709.
- 1:2-Diketopentamethylene** and its halogen, benzoyl, phenazine, and phenylurethane derivatives (DIECKMANN), A., i, 786.
- 1:2-Diketopentamethylene-3:5-dicarboxylic acid**, ethyl ester, and its metallic derivatives, anilide, osazone, and phenazine (DIECKMANN), A., i, 786.
- 3:5-Diketo-2-phenyltetrahydrothiazole** (WHEELER), A., i, 28.
- 2:6-Diketo-4-isopropylhexamethylene**. See 4-*iso*Propylidihydrosorein.
- Dilactanilide**, α -dithio-, and its copper derivatives (BECKURTS and FRERICHS), A., i, 764.
- Dilatometer** for the determination of volume and density changes (WENZEL), A., ii, 125.
- Dilution law**. See Affinity.
- Dimethylthiocarbamide** (v. BRAUN and RUMPF), A., i, 275.
- 1¹:1⁴-Dimetho-1¹-pentenylbenzene**. See β -Phenyl- β -*iso*heptylene.
- Dimethoxyanhdroglycogallol** (PERKIN and WILSON), P., 1902, 215.
- 1:3-Dimethoxybenzene**, 4:6-dinitro- (BLANKSMA and MEERUM TERWOGT), A., i, 715.
- Dimethoxybenzylpropionic acid** and its synthesis (PERKIN), T., 233; P., 1901, 258.
- 5:7-Dimethoxychromone** and its -2-carboxylic acid (v. KOSTANECKI and DE RUIJTER DE WILDT), A., i, 303.
- 4:6-Dimethoxycoumaric acid**, disodium and disilver salts (TILDEN and BURROWS), T., 511; P., 1901, 217.
- 4:6-Dimethoxycoumarinic acid**, bromo-, and its potassium salt and methyl ester (TILDEN and BURROWS), T., 509; P., 1901, 217.
- $\alpha\beta$ -Dimethoxydihydro*iso*eugenol**, bromo-, and its benzoyl derivative (AUWERS and MÜLLER), A., i, 212.
- 2:4-Dimethoxydimethyl-3-methyl- and -5-bromomethyl-1-phenol**, 3:6-dibromo- (AUWERS and ANSELMINO), A., i, 215.
- 3:4-Dimethoxyhydratropaldehyde**, and its oxime (BOUGAULT), A., i, 453.
- 3:4-Dimethoxyhydratropic acid** and its salts (BOUGAULT), A., i, 453.
- Dimethoxyhydrindone**, bromo- and chloro- (GLAWE), A., i, 782.
- 3:5-Dimethoxy-2-methylcarbonyl-6-aminophenol** (POLLAK and SOLOMONICA), A., i, 149.
- 4:6-Dimethoxy- α -methylcoumarin** and its β -bromo- and β -hydroxy-derivatives (TILDEN and BURROWS), T., 511; P., 1901, 217.
- Dimethoxymethylenedioxyacetophenone** (BOUGAULT), A., i, 453.
- Dimethoxymethylenedioxy-hydratrop-aldehyde** and -hydratropic acid (BOUGAULT), A., i, 453.
- 2:7-Dimethoxynaphthalene**, halochromy of (KAUFFMANN), A., i, 368.
- Dimethoxyphenoxide**, *d*initro- (HILL-YER), A., i, 50.
- Dimethoxy-2-phenyl-4-benzylidene-1:4-benzopyranols**, 5:7- and 7:8- (BÜLOW and GROTKOWSKY), A., i, 554.
- Dimethylacetooacetic acid**, methyl ester, action of nitric acid on (PERKIN), P., 1901, 204.
- Dimethylacetonylacetone-phenylhydr-azone** and -semicarbazone (POSNEIT), A., i, 83.
- 3:7-Dimethylacridine**, 2:8-diamino-, and its diacetate derivative (ULLMANN and MARÍC), A., i, 182.
- Dimethylacrylic acid**. See Pentenoic acid.
- $\beta\beta$ -Dimethyladipic acid** (*hexanedicarboxylic acid*), and its silver salt (WALLACH and SCHEUNERT), A., i, 806.
- Dimethylaminoacetic acid**, esters, and their alkyl iodides and aurichlorides (WILLSTÄTTER), A., i, 267.
- m-Dimethylaminoacetophenone** and its salts and oxime (RUPE, BRAUN, and v. ZEMBRUSKI), A., i, 40.
- p-Dimethylaminoacetophenone**, *o*-amino- and *o*-nitro-, and salts and acetyl derivative of the amino-compound (RUPE, BRAUN, and v. ZEMBRUSKI), A., i, 40.
- Dimethylaminobenzaldehyde**, condensation of, with β -naphthol (HEWITT, TURNER, and BRADLEY), T., 1207; P., 1902, 181.
- p-Dimethylaminobenzaldehyde**, action of, on urine (CLEMENS), A., ii, 296.
- p-Dimethylaminobenzylidene-*m*-amino- and -*m*-nitro-acetophenones** (RUPE and WASSERZUG), A., i, 40.
- p-Dimethylaminobenzylidene malono-nitrile** (WALTER), A., i, 373.
- p-Dimethylaminobenzylidene-*p*-nitro-aniline**, and *p*-Dimethylaminobenzylidene-*p*-aminobenzenesulphonic acid (GUYOT and GRANDERYE), A., i, 398.
- γ -Dimethylaminobutyric acid**, methyl ester, and its salts (WILLSTÄTTER), A., i, 268.

- Dimethylaminodimethylacetal** (WILLSTÄTTER), A., i, 267.
- Dimethyl-*p*-diaminodiphenylamine** (GNEHM, BOTS, and WEBER), A., i, 831.
- s-Dimethylidiaminodi-*o*-tolyl ketone** and thioketone and hydrols from (GNEHM and WRIGHT), A., i, 295.
- Dimethylidiaminohexene** and its salts and phenylthiocarbamide (DUDEN and LEMME), A., i, 337.
- Dimethyl-*p*-amino-*m*- and -*p*-hydroxydiphenylamines** and their diacetyl and dibenzoyl derivatives (GNEHM, BOTS, and WEBER), A., i, 831.
- 2-Dimethylamino-12-methylpheno-1:2-naphthaacidinium** salts (ULLMANN and MARIĆ), A., i, 183.
- 3'-Dimethylaminopheno-3-aminoxylinazines** (NÖLTING and THESMAR), A., i, 314.
- 2-Dimethylaminopheno-1:2-naphthaacidine** and its leuco-base and salts (ULLMANN and MARIĆ), A., i, 183.
- as-Dimethylidiamino-phenotolazo- and -tolonaphthazo-oxonium chlorides** (MÖHLAU, KLIMMER, and KAHL), A., i, 840.
- Dimethylaminophenylarsenic acid** (MICHAELIS and BRUDER), A., i, 412.
- p-Dimethylaminophenylmercury acetate** (DIMROTH), A., i, 656; (PESCI), A., i, 849.
- β-Dimethylaminopropionic acid**, methyl ester and its salts (WILLSTÄTTER), A., i, 268.
- 3:6-Dimethylaminothymoquinone** (BÖTERS), A., i, 475.
- Dimethylaminotolaminonaphthazo-oxonium hydrde** (MÖHLAU, KLIMMER, and KAHL), A., i, 840.
- 3:4-Dimethylidiaminotoluene** and its compounds with benzaldehyde and salicyaldehyde (FISCHER, RIGAUD, and BECKER), A., i, 400.
- o-Dimethylamino-*p*-tolylarsenic compounds** (MICHAELIS and EPPENSTEIN), A., i, 415.
- Dimethylisoamylcarbinol.** See Octyl alcohol.
- Dimethylaniline**, compounds of with antimony haloids (ROSENHEIM and STELLMANN), A., i, 68.
- action of thallic chloride on (RENZ), A., i, 823.
- oxide (BAMBERGER and RUDOLF), A., i, 364.
- Dimethylaniline**, *p*-nitroso-, action of ethylene dibromide on, and its salts (TORREY), A., i, 755.
- condensation of, with 1-phenyl-3-methylpyrazolone (SACHS and BARSCHALL), A., i, 504.
- Dimethylaniline-6-carboxylic acid**, 4-amino- and Dimethylaniline-6-sulphonic acid, 4-amino- and 4-nitro- (KALLE & Co.), A., i, 398.
- 3:3'-Dimethylazobenzene**, 4-amino- (MEHNER), A., i, 577.
- 1:5-Dimethylbenziminoazole** (PINNOW), A., i, 671.
- 1:6-Dimethylbenziminoazole**, 3-methiodide and 3-methochloride (FISCHER, RIGAUD, and BECKER), A., i, 400.
- 4:6-Dimethylbenziminoazole** and its salts (FISCHER, RIGAUD, and KOPP), A., i, 189.
- Dimethylidibromoethylacetic acid (hexoic acid, dibromo-)** (PERKIN), T., 257.
- ββ-Dimethylbutane.** See Hexane.
- αα-Dimethylbutane-αβδ-tricarboxylic acid (hexanetricarboxylic acid)** (BONE and SPRANKLING), T., 52; P., 1901, 244.
- βδ-Dimethyl-*α*-isobutylvaleric acid.** See Undecoinic acid.
- αα-Dimethylbutyrolactone** (PERKIN), T., 257.
- βγ-Dimethylbutyrolactoneacetic acid**, and its lactone and β-bromo- (STOBBE, STRIGEL, and MEYER), A., i, 461.
- 2:7-Dimethylcarbazole** (v. NIEMENROWSKI), A., i, 21.
- 2:6-Dimethylchloroethoxylutidine.** See 2:6-Dimethylnicotinic acid, 4-chloro-, ethyl ester.
- Dimethyleoumarones**, isomeric, in coal tar (BOES), A., i, 151.
- βγ-Dimethylcrotonolactoneacetic acid** (STOBBE, STRIGEL, and MEYER), A., i, 461.
- Dimethyldiethylidiaminophenotolazo-oxonium iodide** and its isomeride (MÖHLAU, KLIMMER, and KAHL), A., i, 839.
- Dimethylidicyclohexyl** (KURSANOFF), A., i, 360.
- 1:1-Dimethyl-Δ^{2:4}-dihydrobenzene** and its oxidation products and dibromide, hydrobromide, and nitrosochloride (CROSSLEY and LE SUEUR), T., 832; P., 1901, 245.
- physical properties of (PERKIN), T., 836.
- 1:1-Dimethyl-Δ^{2:4}-dihydrobenzene**, 3:5-dichloro-, and its oxidation (CROSSLEY and LE SUEUR), T., 826; P., 1901, 245; 1902, 238.
- physical properties of (PERKIN), T., 828.
- 3:5-Dimethyl-Δ^{1:5}-dihydrophenylacetic acid** and its ethyl ester, silver salt and amide (WALLACH and BÖTTICHER), A., i, 798.

- Dimethyldihydroresorcin** (CROSSLEY and LE SUEUR), P., 1902, 238.
and its halogen derivatives and methyl ester (VORLÄNDER and KOHLMANN), A., i, 610.
action of phosphorus pentachloride on, and its hydrochloride (CROSSLEY and LE SUEUR), T., 821; P., 1901, 245.
action of phosphorus haloids on, and its anhydride (CROSSLEY and LE SUEUR), P., 1902, 238.
- 4:4'-Dimethylidiphenyl**, 2:2'-diamino-, and its diacyl derivatives (v. NIEMENTOWSKI), A., i, 21.
- 4:4'-Dimethylidiphenyleneoxide** (v. NIEMENTOWSKI), A., i, 21.
- Dimethylene tartrate** (STERNBERG), A., i, 259.
- Dimethyleneiminodiphenylmethane**, 5:5'-dinitro-3:2:3':2' (MEYER and STILLICH), A., i, 320.
- 1:3-Dimethyl-5-ethylbenzene**, 2-iodo- (KLAGES and STORP), A., i, 671.
- Dimethyl-1-ethylbenziminoazoles**, 2:5- and 2:6-, and their salts (FISCHER, RIGAUD, and KOPP), A., i, 189.
- Dimethylethylbetaine** and its salts (WILLSTÄTTER), A., i, 268.
- 2:5-Dimethyl-1-ethylindole** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- 1:5-Dimethyl-2-ethyl- Δ^1 -tetrahydrobenzene** (WALLACH and THÖLKE), A., i, 799.
- Dimethylethyluracils**, 1:4:3- and 3:4:1- (BEHREND and THURM), A., i, 832.
- Dimethylfluoran** nitrate and sulphates (HEWITT and TERVET), T., 665; P., 1902, 86.
- Dimethylfluorindine** (*tolufluorouline*) (NIETZKI and SLABOSZEWCZ), A., i, 126.
- 2:4-Dimethylfuran-3-carboxylic acid** and its salts and esters (FEIST) A., i, 488.
- $\alpha\alpha$ -Dimethylglutaconic acid** (*pentanedicarboxylic acid*), *cis*- and *trans*-, synthesis of (PERKIN and SMITH), P., 1902, 214.
and its oxidation and distillation, and ethyl ester (PERKIN), T., 253; P., 1900, 214.
- Dimethylglutaric acid** (*pentanedicarboxylic acid*) (m. p. 74–75°), and its ethyl ester and anhydride (BLAISE), A., i, 530.
(m. p. 100–101°) (HENRICH), A., i, 422.
- $\alpha\alpha$ -Dimethylglutaric acid** (*pentanedicarboxylic acid*), synthesis of (PERKIN and SMITH), P., 1902, 214.
- $\alpha\alpha$ -Dimethylglutaric acid** (*pentanedicarboxylic acid*), bromo-, ethyl ester, and the action of alcoholic potash on (PERKIN), T., 252; P., 1900, 214.
 $\alpha\beta$ -dibromo- (PERKIN), T., 254.
- $\beta\beta$ -Dimethylglutaric acid** (*pentanedicarboxylic acid*), preparation of (VORLÄNDER and KOHLMANN), A., i, 611.
- $\alpha\beta$ -Dimethylglutaric acid** (*pentanedicarboxylic acid*), *cis*- and *trans*-, separation of, and its imide and α -cyano-derivatives (THORPE and YOUNG), P., 1902, 247.
- $\alpha\alpha$ -Dimethylglutaric anhydride**, action of aluminium chloride on (DESFOINTAINES), A., i, 258.
- Dimethylheptenol**, mercuric compounds of (SAND and SINGER), A., i, 851.
- Dimethylhexamethylenes**. See Dimethylcyclohexanes.
- Dimethyl- $\gamma\delta$ -hexane** (*di-sec.-butyl*). See Octane.
- 1:1-Dimethylcyclohexane** from camphoric acid (ZELINSKY and LEPESCHKIN), A., i, 143.
- 1:3-Dimethylcyclohexane**, and **1:3-Dimethylcyclohexanol** and its iodide, optically active (ZELINSKY), A., i, 665.
- 1:3-Dimethyl-5-cyclohexanecarboxylic acid** and amide (ZELINSKY), A., i, 675.
- $\beta\epsilon$ -Dimethylhexane- $\beta\epsilon$ -diol**. See Octylene glycol.
- 1:1-Dimethylcyclohexanemalonic acid**, ethyl ester (ZELINSKY and ALEXANDROFF), A., i, 74.
- 3:5-Dimethylcyclohexane-3-ol-1-one-4:6-dicarboxylic acid**, diethyl ester, and its dibenzoyl and phenylcarbamide derivatives (RABE and ELZE), A., i, 710.
- Dimethylcyclohexylthiocarbamide** (v. BRAUN and RUMPF), A., i, 275.
- Dimethylhomophthalcarboxylic acid** and its salts (WOLFF, GABLER, and HEYL), A., i, 678.
- Dimethylhydroxyethylamine** (*dimethyl-ethanolamine*), and its picrate and picronolate (KNORR and MATTHES), A., i, 13.
- $\gamma\epsilon$ -Dimethyl- γ -(or δ)-hydroxyhydroxysorbitolone** (DOEBNER), A., i, 341.
- Dimethylindenones** in tar (BOES), A., i, 435.
- Dimethylindigotins** (KUHARA and CHIKASHIGE), A., i, 227.
- 1:2-Dimethylindole**, 5-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- Dimethylionones**, α - and β - (HAARMANN & REIMER), A., i, 471.

- Dimethylketazine**, transformation of, into 3:5:5-trimethylpyrazoline (FREY and HOFMANN), A., i, 60.
- Dimethyl-lupuline** (WILLSTÄTTER and FOURNEAU), A., i, 558.
- Dimethylmalonamide** (FISCHER and DILTHEY), A., i, 270.
- Dimethylmalonic acid** (*propanedicarboxylic acid*) (PERKIN), T., 255 ; P., 1900, 214.
- Dimethylmethylenedithiodiglycollanilide** (BECKUITS and FRERICHS), A., i, 764.
- Dimethylnaphthalene** (b. p. 264°) (FREUND and MAI), A., i, 101.
- Dimethyl- β -naphthylamine** and its salts (REYCHLER), A., i, 757.
- α -Dimethylnaphthylaminesulphonic acids** (FUSSGANGER), A., i, 279.
- 2:6-Dimethylnicotinic acid**, 4-chloro-, and its ethyl ester and additive salts (MICHAELIS and HANISH), A., i, 823.
- 3:4-Dimethylcycloocta- $\Delta^{1:5}$ -diene** (DOEBNER), A., i, 599.
- 2- α -Dimethylethylquinoline** and its salts (KOENIGS and BISCHKOPF), A., i, 179.
- 2-Dimethylolmethyl-3-methylquinoline** and its salts (KOENIGS and STOCKHAUSEN), A., i, 179.
- 3:5-Dimethyloxazole-4- α -propionic acid** and its ethyl ester and copper derivative (MARCH), A., i, 257, 706.
- 3:5-Dimethyloxazole-4- β -propionic acid** and its ethyl ester (MARCH), A., i, 707.
- 2:3-Dimethyloxazolidine** (KNORR and MATTHES), A., i, 57.
- Dimethylpentadecylcarbinol**, and the action of bromine on (IPATIEFF and GRAVE), A., i, 5.
- 1:3-Dimethylcyclopentane**, optically active (ZELINSKY), A., i, 665.
- 1:3-Dimethylcyclopentanol-3**, and its iodide, optically active (ZELINSKY and GUTT), A., i, 70 ; (ZELINSKY), A., i, 665.
- 3-Dimethylcyclopentanone** and its benzylidene derivatives and semicarbazone (WALLACH and SCHEUNERT), A., i, 806.
- Dimethylphenazonium** picrate (KEHRMANN and STAMPA), A., i, 567.
- Dimethylphenonaphthacridine** (ULLMANN), A., i, 119.
- Dimethylphenoazazines**, isomeric (KEHRMANN and STAMPA), A., i, 567.
- 1:3-Dimethyl-*m*-phenylenediamine**, 4:6-dinitro- (BLANKSMA and MEERUM TERWOGT), A., i, 715.
- Dimethyl-*p*-phenylenediamine**, diazochloride of (HANTZSCH), A., i, 325.
- Dimethylphloroglucinolcarboxylic acid** and its methyl ether and their methyl esters (HERZIG and WENZEL), A., i, 464.
- Dimethylphthalide-acetic-, -bromotetronic, and -tetrone acids** (WOLFF, GABLER, and HEYL), A., i, 678.
- Dimethylpinacone** (NORRIS and GREEN), A., i, 5.
- 2:5-Dimethylpiperazine** (HOYER), A., i, 352.
- $\alpha\beta$ -Dimethylpropanetricarboxylic acid** (*pentanetri-carboxylic acid*) (THORPE and YOUNG), P., 1902, 248.
- Dimethylisopropylbenzene** (WALLACH and BÖTTICHER), A., i, 799.
- Dimethylcyclopropylcarbinol**, isomeride of (ZELINSKY), A., i, 70.
- 3:5-Dimethylpyrazole** and its 1-carboxylamide (POSNER), A., i, 82.
- 1:3-Dimethylpyridazone** (POPPENBERG), A., i, 61.
- Dimethylpyridines**, 2:4-, 2:5-, and 2:6-, from Scottish shale oil (GARRETT and SMYTHE), T., 451 ; P., 1900, 190 ; 1902, 47.
- 2:4-Dimethylpyridine**, condensation of, with *p*-nitrobenzaldehyde (KNICK), A., i, 825.
- 6-amino-3-cyano-** (MOIR), T., 112 ; P., 1901, 69.
- 2:5-Dimethylpyridine**, synthesis of, and its salts (ERRERA), A., i, 117.
- Dimethylpyridinedicarboxylic acid**, ethyl ester, and its platinichloride (KNOEVENAGEL and FUCHS), A., i, 565.
- 2:4-Dimethylpyridine-3:5-di- and -3:5:6-tri-carboxylic acids** (WOLFF, GABLER, and HEYL), A., i, 677.
- 2:4-Dimethylpyrimidine** and its 6-amino- and 6-chloro-derivatives, 6-mercaptopurine and sulphide (SCHMIDT), A., i, 499.
- 4:6-Dimethylpyrimidine**, and its 2-chloro- and 2-amino-derivatives, 2-disulphide and 2-mercaptopurine (ANGERSTEIN), A., i, 123.
- 2:4-Dimethylpyrimidyl-ethylenediamine** and -glyoxime peroxide (GABRIEL and COLMAN), A., i, 498.
- Dimethylpyrone**, constitution of (COEHN), A., i, 686.
- physico-chemical properties of (WALDEN), A., i, 169 ; (WALKER), A., i, 170.
- cupric chloride (WERNER), A., i, 687.
- 4:6-Dimethyl-1:2-pyrene-5-carboxylic acid**, 3-bromo-, methyl ester (BUCHNER and SCHRÖDER), A., i, 319.
- Dimethylpyronedicarboxylic acid**, ethyl ester, action of hydroxylamine on (PALAZZO), A., i, 816.
- 2:4-Dimethylpyrrolidine** and its salts (KNORR and RABE), A., i, 54.

- Dimethylpyrrolines**, 2:4- and 2:5-, and their salts (KNORR and RABE), A., i, 54.
- Dimethylpyruvic acid** and its ethyl ester, and their oximes (BOUVEAULT and WAHL), A., i, 137.
- γ -**Dimethylsorbic acid** and its salts (DOEBNER), A., i, 340.
- Dimethylsuccinic acid** (*butanedicarboxylic acid*), synthesis of, under the action of light (ZERNOFF), A., i, 204, 343.
- Dimethylsuccinic anhydride**, action of aluminium chloride on (DESFOINTAINES), A., i, 258.
- Dimethyltetrahydrofuran** and its salts (DUDEN and LEMME), A., i, 337.
- Dimethyltetrahydronicotinobetaine** and its salts (WILLSTÄTTER), A., i, 268.
- Di-p-methyltetraphenylhexahydrotetrazine** (RASSOW and RÜLKE), A., i, 404.
- Dimethyl-o-toluidine**, action of thallic chloride on (RENZ), A., i, 823.
- Dimethyl-o-toluidine**, 4-amino-, and its sulphate and acetyl derivative, and 4-nitro- (MÖHLAU, KLIMMER, and KAHL), A., i, 838.
- 4-nitro- (STADEN), A., i, 444.
- 6-nitro-, and its hydrobromide (v. TATSCHALOFF), A., i, 443.
- Dimethyl-m-toluidine**, 5-nitro- (HAI-BACH), A., i, 444.
- Dimethyl-p-toluidine**, 2-nitro- (HAI-BACH), A., i, 444.
- $\alpha\alpha$ -**Dimethyltricarballylic acid** (*pentanetricarboxylic acid*), esters (WEGSCHEIDER), A., i, 618.
- Dimethyltricarballylic acids** (*pentanetricarboxylic acids*), $\alpha\alpha$ - and $\alpha\gamma$, synthesis and dissociation constants of, and their cyano-derivative, esters, and anhydro-acids (BONE and SPRANKLING), T., 29; P., 1901, 215.
- Dimethyltrimethylenedicarboxylic acid** (BONE and SPRANKLING), T., 51; P., 1901, 243.
- Dimethyluracils**, constitution of (BEHREND and THURM), A., i, 832.
- Dimethylvinylacetic acid** (*hexenoic acid*) (PERKIN), T., 256.
- Dimethylviouric acid**, action of barium hydroxide on (WHITELEY), P., 1902, 220.
- 3:8-Dimethylxanthine** (BOEHRINGER & SÖHNE), A., i, 125.
- Dimycrene** (HARRIES), A., i, 811.
- Dinaphthapyranol**, oxidising properties of (FOSSE), A., i, 689.
- Dinaphthaxanthene** and bromo- (FOSSE), A., i, 171, 368.
- bromo- and chloro- (FOSSE), A., i, 171.
- Dinaphthaxanthydroxyl** and its acetate (FOSSE), A., i, 171, 368.
- Dinaphthaxanthone** platinichloride (FOSSE), A., i, 171.
- Dinaphthaxanthone**, bromo- (FOSSE), A., i, 51.
- γ -**Dinaphthaxanthone** (STROHBACH), A., i, 172.
- Dinaphthaxanthonium** bromide and iodide, dibromo- and diiodo- (FOSSE), A., i, 304.
- α -**Dinaphthazethione** (KEHRMANN, GRESSLY, and MISSLIN), A., i, 569.
- α -**Dinaphthylamine**, thio-, and its picrate (KEHRMANN, GRESSLY, and MISSLIN), A., i, 569.
- Dinaphthylene glycol**, so-called (FOSSE), A., i, 368.
- derivatives of (FOSSE), A., i, 51.
- Di- α - and - β -naphthylethylenedisulphones** (TRÖGRE and BUDDE), A., i, 775.
- Di- β -naphthylformamidine** (DAINS), A., i, 602.
- Di- β -naphthylguanidine**, amino-, and its additive salts (BUSCH and ULMER), A., i, 574.
- Di- α -naphthylmethyl-thiocarbamides**, -thiocarbimides, and bromide (WHEELER and JAMIESON), A., i, 763.
- Diospide** from Monhegan Island, Maine (LORD), A., ii, 463.
- Dioxyalkylpyridines**, dicyano-, preparation of (GUARESCHI), A., i, 819.
- 2:6-Dioxycopazoline** and its salts (GABRIEL and COLMAN), A., i, 841.
- 1:4-Dioxycopirine**, and its salts, and carboxylic acid, methylester (GABRIEL and COLMAN), A., i, 401.
- 2:6-Dioxymethylpyrimidine**. See Methyluracil.
- Dioxypinene** and its oxime, semicarbazone, and compound with phenylcarbimide (BALBIANO and PAOLINI), A., i, 808.
- Dioxysylvic acid** (FAHRION), A., i, 166.
- Dioxytaric acid** and its dioxime (ARNAUD), A., i, 343.
- Dipalmito-olein** and -stearin (HANSEN), A., i, 340.
- s -**Dipalmitylhydrazide** (DELLSCHAFT), A., i, 142.
- Dipentene** bromides (WALLACH and RAHN), A., i, 803.
- hydrochloride, magnetic rotation of (PERKIN), T., 307; P., 1902, 29.
- Diphenacyl**, bromo- and chloro- (PAAL and SCHULZE), A., i, 229.
- Diphenic anhydride**, condensation of, with benzene (GÖTZ), A., i, 372.

- 2:2'-Diphenol** and its hydrate, dimethyl and ethylene ethers, urethane, and amino-, bromo-, chloro- and nitro-derivatives (DIELS and BIBERGEL), A., i, 219.
- Diphenyl**, critical constants and molecular complexity of (GUYE and MALLET), A., ii, 195, 303.
- derivatives (ULLMANN and FORGAN), A., i, 89; (BÖRNSTEIN), A., i, 127.
- Diphenyl**, 2:2'-diamino-and its dibenzoyl and diformyl derivatives, and 2:2'-dinitro- (v. NIEMENTOWSKI), A., i, 21.
- 4:4'-diamino-. See Benzidine.
- 2:2'-dinitro-. electrolytic reduction of (WOHLFAHRT), A., i, 509.
- and 4:4'- and 5:5'-dichloro-2:2'-dinitro- (ULLMANN and FORGAN), A., i, 89; (ULLMANN), A., i, 435.
- Diphenyl sulphide**, tetranitrodicyano- (BLANKSMA), A., i, 281.
- sulphide, bromonitro, chloronitro- and nitro-derivatives of (BLANKSMA), A., i, 282.
- sulphoxide, bromonitro-derivatives of (BLANKSMA), A., i, 282.
- disulphoxide, di-p-iodo- (TRÖGER and HURDELBRINK), A., i, 275.
- Diphenylacetaldehyde**, 4:4'-dichloro- (MONTAGNE), A., i, 473.
- Diphenylacetic acid**, methylene ester (DESCUDÉ), A., i, 339.
- Diphenylacetylenecarbinol** (*phenyl-phenylacetylenecarbinol*) (MOUREU and DESMOTS), A., i, 289.
- $\gamma\delta$ -**Diphenylallylacetic acid**. See $\gamma\delta$ -Diphenyl- γ -pentenoic acid.
- Diphenylamine**, 4'-mono- and 5:4'-dichloro-2-amino-, 4'-chloro-2-amino-, and 4'-chloro-3-nitro- (WILBERG), A., i, 314.
- 5'-chloro-2':4':4'-dinitro-2-amino- (NIETZKI and SLABOSZEWCZ), A., i, 125.
- 4:6-dinitro-2-cyano- (BLANKSMA), A., i, 281.
- Diphenyltetra-aminobenzene**, diamino- (NIETZKI and SLABOSZEWCZ), A., i, 126.
- Diphenyl-p-anisylcarbinol** (v. BAAYER and VILLIGER), A., i, 771.
- Diphenylarsenic compounds** (MICHAELIS and WEBER), A., i, 515.
- Diphenyl-p-azophenylene**, action of hydrogen chloride on (BANDROWSKI and PROKOPECZKO), A., i, 330.
- Diphenylazophenylmethylglycine** (MAI), A., i, 249.
- 1:2-Diphenyl-3-benzyl-, -3-bornyl-, -3-ethyl-, -3-fenchyl-, and -3-methyl-iminoxanthides (TSCHUGAEFF), A., i, 605.
- Diphenylbisazobenzoylacetic acid**, ethyl ester, and its phenylhydrazine compound (BÜLOW and HAIDER), A., i, 326.
- $\beta\gamma$ -**Diphenylbutyrolactone**, $\beta\gamma$ -dibromo- (THIELE and STRAUS), A., i, 154.
- Diphenylcarbamide**, *di-p-chloro-*, and its acetyl derivative (BAMBERGER and DESTRAZ), A., i, 539.
- Diphenylchlorophenylene-p-diamines** (BANDROWSKI and PROKOPECZKO), A., i, 330.
- $\beta\gamma$ -**Diphenyl- $\Delta\alpha$ -crotonolactone** and its isomeride and bromo-derivatives and their α -benzylidene compounds (THIELE and STRAUS), A., i, 154.
- $\alpha\beta$ -**Diphenyl- $\alpha\alpha$ -dibenzyl- and - $\alpha\alpha$ -diphenyl-thiolethane- β -al** (POSNER), A., i, 221.
- Diphenyldihydrazonecyanooacetic acid**, esters, and their dialkyl derivatives (FAVREL), A., i, 329.
- Diphenyldihydrazonemalonic acid** and its esters (FAVREL), A., i, 507.
- $\beta\beta$ -**Diphenyl- $\alpha\alpha$ -dimethylpropionic acid** (NEF), A., i, 8.
- Diphenyl-4:4'-disulphonic acid**, 2:2'-dinitro-, and its potassium salt (ULLMANN), A., i, 435.
- Diphenylenebistriazole** (WHEELER and JOHNSON), A., i, 27.
- Diphenyleneketonecarboxylic acid**. See Fluorenone-5-carboxylic acid.
- 4:5-**Diphenylene-1-methyliminoazole**, identity of, with epiosine (VAHLEN), A., i, 727.
- Diphenylenequinoxaline**, nitro- (SCHMIDT and KÄMPF), A., i, 797.
- Diphenylenequinoxalinesulphonic acid**, potassium salt (WERNER), A., i, 441.
- Diphenylethane**, ω -bromo- (WHEELER and JOHNSON), A., i, 761.
- ω -dichloro- ω nitro- (BILTZ), A., i, 417.
- ω -dinitro- (SCHMIDT), A., i, 500.
- $\beta\beta$ -**Diphenylethane**, ω -dinitro- (SCHMIDT), A., i, 21.
- s-Diphenylethylene**. See Stilbene.
- $\alpha\beta$ -**Diphenylethyl phenyl ketone**, thio- (POSNER), A., i, 297.
- Diphenylformamidine**, *di-p-chloro-*, and its picrate (DAINS), A., i, 602.
- Diphenylglycollic acid**. See Benzilic acid.
- Diphenylguanidine**, amino-, and its reactions (BUSCH and ULMER), A., i, 573.
- Diphenylcyclohexanes**, *o*-, *m*-, and *p*- (KURSANOFF), A., i, 20.
- Diphenylhydroxyformamidine** and its salts (BAMBERGER and TSCHIRNER), A., i, 277; (LEY), A., i, 445.
- Diphenyliodonium bromocamphorsulphonate** (PETERS), T., 1359; P., 1902, 184.

- Diphenyliodonium** hydroxide and salts, *s*-iodonitro- (WILLGERODT and ERNST), A., i, 17.
- Diphenylmethane**, critical constants and molecular complexity of (GUYE and MALLET), A., ii, 195, 303.
- Diphenylmethane**, 2:2'-*diamino*-, and 2:2'-*dinitro*- (SCHNITZSPAHN; BERTRAM), A., i, 436.
- ω*-bromo-, action of, on pyridine (TSCHITSCHIBABIN), A., i, 395.
- s*-*op*-*dinitro*- (SCHORLEMMER), A., i, 435.
- 2:2'-*dinitro*-4:4'-*diamino*-, and its hydrochloride and sulphate (SCHNITZSPAHN), A., i, 436.
- Diphenylmethane-3:3'-dicarboxylic acid**, 4:4'-*diamino*-, and its salts, esters, and diacetyl and dibenzoyl derivatives (HELLER and FIESELmann), A., i, 779.
- Diphenylmethyl-acetamide** and **-benzamide** (WHEELER), A., i, 28.
- Diphenylmethylamine**, action of thallic chloride on (RENZ), A., i, 823.
- Diphenylmethylenediamine** and its platinichloride (SENIER and GOODWIN), T., 283; P., 1902, 12.
- Diphenylmethylphenylsemithiocarbazide** (WHEELER), A., i, 29.
- 1:5-Diphenyl-3-methylpyrazole-4-azo-benzene** (SACHS and RÖHMER), A., i, 837.
- 1-Diphenylmethylpyridine**, 1-bromo- (TSCHITSCHIBABIN), A., i, 395.
- 1-Diphenylmethylpyridone** salts (TSCHITSCHIBABIN), A., i, 395.
- 2:3-Diphenyl-5-methylpyrrole** and its 4-carboxylic acid, ethyl ester, and 4-acyl derivatives (KNORR and LANGE), A., i, 822.
- 4:5-Diphenyl-2-methylpyrrole-3-carboxylic acid** and its ethyl ester and salts (FEIST and STENGER), A., i, 489.
- Diphenylmethylthiocarbamides** (WHEELER), A., i, 28.
- Diphenylmethylthiocarbimide** (WHEELER), A., i, 28.
- Diphenyl-4:6-dinitro-1:3-phenylenediamine**, *o*-*diamino*- (NIETZKI and SLABOSZEWCZ), A., i, 126.
- 3:4-Diphenylcycloocta-Δ^{1:5}-diene** (DOEBNER), A., i, 599.
- Diphenyloxyformamidine**, *di-p*-chloro-, and its copper salt (BAMBERGER and DESTRAZ), A., i, 539.
- αε*-**Diphenyl-*α*-pentanol** (SORGE), A., i, 379.
- γδ*-**Diphenyl-*γ*-pentenoic acid** and its salts (FICHTER and MERCKENS), A., i, 160.
- Diphenyl-propanes** and **-propylenes**, *aa*- and *αβ*- (KLAGES), A., i, 668.
- s-Diphenylpropionylhydrazine** (JORDAN), A., i, 58.
- 2:5-Diphenylpyrazine** (KUNCKELL and VOSSEN), A., i, 599.
- di-p*-bromo- and *di-p*-chloro- (COLLET), A., i, 39.
- 1:4-Diphenylpyrrolidone-mono- and -5:5-di-carboxylic acids** (CONRAD and REINBACH), A., i, 211.
- ζ-Diphenylsulphone-β-methylheptane-δ-one** (POSNER), A., i, 221.
- Diphenyltetramethylethylenebisbromomethyleneacetic acid** (KOHLER), A., i, 788.
- Diphenyltetramethylethylenebisethylene-malonic acid** and its esters (RÜBER), A., i, 617, 785; (KOHLER), A., i, 788.
- Diphenyltetronecarboxylic acid**, dihydroxyfluorescein of (LIEBERMANN and WÖBLING), A., i, 547.
- Diphenyltetrenedicarboxylic acid** and its esters, salts, anhydride, amide and imide (LANSER and HALVORSEN), A., i, 458.
- Diphenylthiocyanoacetic acid**, ethyl ester (WHEELER and JOHNSON), A., i, 761.
- Diphenyl-*ψ*-thiohydantoin** (WHEELER), A., i, 28; (WHEELER and JOHNSON), A., i, 761.
- ββ*-**Diphenylthiol-γ-methylpentane-δ-one** (POSNER), A., i, 221.
- Diphenylthiolstilbene** (POSNER), A., i, 220.
- Diphenyl-*p*-tolylaminotriazole** (WHEELER and JOHNSON), A., i, 27.
- Diphenyl-*p*-tolylarsenic compounds** (MICHAELIS and LAUTERWALD), A., i, 519.
- 1:3-Diphenyl-1:2:4-triazole 5-mercaptopan** (WHEELER and BEARDSLEY), A., i, 503.
- 1:5-Diphenyl-1:2:4-triazole 3-mercaptopan** and benzoyl derivative, 3-alkylmercaptans, and sulphides (WHEELER and BEARDSLEY), A., i, 502.
- Diphenylurazine**, constitution of (ACREE), A., i, 243.
- αδ*-**Diphenylvaleric acid**, *βγ*-*dibromo*- (THIELE and STRAUS), A., i, 158.
- γδ*-**Diphenylvalerolactone** (FICHTER and MERCKENS), A., i, 160.
- Diphthaliminosulphonal** (MANASSE), A., i, 348.
- Diphylline** (SCHLÖTTERBECK and WATKINS), A., ii, 101.
- Dipicraminophenol** and its reactions (CROCKER), A., i, 566.
- Dipinylthiocarbamide** (V. BRAUN and RUMPF), A., i, 275.
- Dipiperidyl-ethane- and -propane-bisiodomethyl iodides** (SCHOLTZ), A., i, 836.

- Diplococcus**, intravenous inoculation of a, from rheumatic fever cases (POYNTON and PAINE), A., ii, 96.
- Dipropionyl**. See Diethyl diketone.
- s*-Dipropionylhydrazide** (HILLE), A., i, 141.
- Dipropylorthonitric acid** (PICTET and GENEQUAND), A., i, 584.
- o*-Dipropoxydiphenyltetrahydropyrone** and its oxime (POSNIAKOFF), A., i, 170.
- 2:5-Dipropoxy-quinol** and -quinone (KNOEVENAGEL and BÜCKEL), A., i, 106.
- Dipropylmalonamide** (FISCHER and DILTHEY), A., i, 270.
- $\alpha\gamma$ -Diisopropyltricarballylic acids** (*nonaneracarboxylic acids*), synthesis and dissociation constants of, and their cyano-derivative, esters, and anhydro-acids (BONE and SPRANKLING), T., 29 ; P., 1901, 215.
- Di-2-and-4-pyridoylsuccinic acids**, ethyl esters (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- 4:4-Dipyrimidylethylenediamine** and its additive salts and diacetyl derivative (GABRIEL and COLMAN), A., i, 498.
- 4:4-Dipyrimidylglyoxime peroxide** (GABRIEL and COLMAN), A., i, 498.
- Disaccharides**, new synthesis of (FISCHER and ARMSTRONG), A., i, 746.
- Dispersion**. See Photochemistry.
- Dissociating compounds**, melting of (LIDBURY), A., ii, 242.
- Dissociating power** of hydrogen sulphide (SKILLING), A., ii, 13.
- Dissociation** of acetic acid in chloroform solution (DAWSON), T., 521 ; P., 1902, 69.
- of acids, bases, and salts at different temperatures (JONES and DOUGLAS), A., ii, 59.
- of dibasic acids (WEGSCHEIDER), A., ii, 643.
- of the monohydric alcohols, and their ethers and metallic derivatives (NER), A., i, 6.
- of quaternary ammonium salts (WEDEKIND and OBERHEIDE), A., i, 277 ; (WEDEKIND and OECHSLEN), A., i, 392.
- of carboxyhæmoglobin (GRÉHANT), A., ii, 93.
- of the hydrate and alcoholate of chloral in solution (BRUNER), A., ii, 305.
- of ternary electrolytes (DRUCKER), A., ii, 3.
- of double salts in water (RIMBACH), A., ii, 306.
- of neutral salts (ARNDT), A., ii, 62.
- Dissociation constants** of alkyltricarballylic acids (BONE and SPRANKLING), T., 37 ; P., 1901, 215.
- of oxalacetic acid and its phenylhydrazone (JONES and RICHARDSON), T., 1158 ; P., 1902, 141.
- Dissociation media** and inorganic solvents (WALDEN), A., ii, 247.
- Dissociation theory** for binary electrolytes and thermodynamics (PLANCK), A., ii, 597.
- Dissolved compounds**, state of, deduced from partition coefficients (HANTZSCH and VAGT), A., ii, 8.
- Distearyl palmitin** (HANSEN), A., i, 339.
- Distillation**, fractional, as a method of quantitative analysis (YOUNG and FORTNEY), T., 752 ; P., 1902, 106.
- simultaneous, of two non-miscible substances (CHARABOT and ROCHEROLLES), A., ii, 552.
- vacuum (FISCHER and HARRIES), A., ii, 491.
- adapter for (PATTERSON), A., ii, 389.
- pressure regulator for (BURSTYN), A., ii, 313.
- Distillery grains**. See Agricultural Chemistry.
- Disulphobenzoic acid** (HOHENEMSER), A., i, 629.
- Disulphones** (POSNER), A., i, 220, 296, 622.
- Disulphonic chlorides**, aliphatic, interaction of, with aromatic amino-compounds (AUTENRIETH and RUDOLPH), A., i, 22.
- Dithionic acid**. See under Sulphur.
- s*-Di- α -thiophencarbamide** (CURTIUS and THYSSEN), A., i, 305.
- Dithiomolyamine** and its mono- and di-ethyl ethers (DECKER and v. SOLONINA), A., i, 767.
- Di- α - and - p -toluenesulphonimides** (FAREWERKEVORM, MEISTER, LUCIUS, & BRÜNING), A., i, 364.
- 3:5-Di- α -toluidino-1-isopropylbenzoquinone, 6-bromo-** (BÖTERS), A., i, 474.
- Di- p -toluyl nitrogen chloride** (CHATATAWAY), P., 1902, 166.
- 4:4-Ditolyl, 2:2'-dinitro-** (ULLMANN and FORGAN), A., i, 89 ; (ULLMANN), A., i, 435.
- Di- p -tolyl diaminodihydroxydiphenylmethane** (GNEHM and VEILLON), A., i, 288.
- Di- p -tolylcarbamide** and its acetyl derivative (BAMBERGER and DESTRAZ), A., i, 539.
- Di- α -tolyl dihydrazonecyanoacetic acid**, esters, and their dialkyl derivatives (FAVREL), A., i, 330.

- Di-*o*-tolyldihydrazone malonic acid and its esters (FAVREL), A., i, 507.**
- Di-*o*- and *p*-tolylformamidines, reaction of, with ethyl acetoacetate, and with ethyl cyanoacetate (DAINS), A., i, 603.**
- Di-*op*-tolylguanidine (HELLER and BAUER), A., i, 445.**
- Di-*p*-tolylguanidine, amino- (BUSCH and ULMER), A., i, 574.**
- Di-*p*-tolyliodonium salts (PETERS), T., 1358; P., 1902, 184.**
- Di-*o*-, *m*-, and *p*-tolylmethylenediamines (SENIER and GOODWIN), T., 283; P., 1902, 12.**
- Di-*o*- and *p*-tolylmethylenedihydroxylamines (BAMBERGER and DESTRAZ), A., i, 539.**
- Di-*p*-tolyloxyformamidine, copper salt and hydrochloride (BAMBERGER and DESTRAZ), A., i, 538.**
- 2:5-Di-*p*-tolylpyrazine (KUNCKELL and VOSSEN), A., i, 599.**
- Dittmarite in Australian bat guano (MACIVOR), A., ii, 460.**
- Ditmethylenedipiperidylum bromide and its salts (SCHOLTZ), A., i, 835.**
- Diuresis (HALSEY), A., ii, 275.**
saline (CUSHNY), A., ii, 276.
See also Urine.
- Diurethanepyrvic acid and its ethyl ester (SIMON), A., i, 14.**
- Diuretic action of isotonic salt solutions (HAAKE and SPIRO), A., ii, 416.**
- Disovaleryl and its dioxime (PONZIO), A., i, 134.**
- s-Divalerylhydrazide (HILLE), A., i, 142.**
- Dixanthoxonium salts (WERNER), A., i, 51.**
- 3:5-Di-*p*-xylidino-1-*isopropylbenzoquinone*, 6-bromo- (BÖTERS), A., i, 474.**
- Di-*as-m*-xylyldiketopiperazine (KUHARA and CHIKASHIGE), A., i, 227.**
- Di-*m*- and *p*-xylylethylenedisulphone (TRÖGER and BUDDE), A., i, 775.**
- Di-*m*-xylylformamidine, and its salts (DAINS), A., i, 602.**
- Di-*p*-xylylformamidine, action of ethyl acetoacetate on (DAINS), A., i, 603.**
- Dixylylmethylenediamine and its platinichloride and nitro-derivatives (SENIER and GOODWIN), T., 284; P., 1902, 12.**
- Di-1:3:4- and -1:4:2-xylylmethylene-dihydroxylamines (BAMBERGER and DESTRAZ), A., i, 539.**
- Di-*m*- and *p*-xylyloxyformamidines and their copper salts (BAMBERGER and DESTRAZ), A., i, 539.**
- Docosane (MABERY), A., i, 734.**
- dicycloDodecatriene (DOEBNER), A., i, 598.**
- Dogs, calcium and magnesium in (ALOY), A., ii, 618.**
- ammonia in the blood and organs of (HORODYŃSKI, SALASKIN, and ZALESKI), A., ii, 516.**
- glycuronic acid in the blood of (LÉPINE and BOULUD), A., ii, 619.**
- acid poisoning in (SPIRO), A., ii, 37.**
- new-born, gastric digestion in (GMLIN), A., ii, 571.**
- See also Agricultural Chemistry.**
- Dolerophanite as a furnace product (STRANDMARK), A., ii, 666.**
- Dolomite from Hungary (LOCZKA), A., ii, 89.**
- composition of (ARSANDAUX), A., ii, 329.**
- Dopplerite (IMMENDORFF), A., ii, 665.**
- Dorstenia Brasiliensis and *D. Klainiana*, composition of the roots of (HECKEL and SCHLAGDENHAUFFEN), A., ii, 101.**
- Douglas fir. See *Pseudotsuga taxifolia*.**
- Drainage water. See Agricultural Chemistry.**
- Draper effect (MELLOR and ANDERSON), T., 414; P., 1902, 32.**
- Drinking water. See Water.**
- Drying apparatus under reduced pressure at high temperatures (PREGI), A., ii, 202.**
- Dufrenoysite (SOLLY and JACKSON), A., ii, 403.**
- Durene, critical constants and molecular complexity of (GUYE and MALLET), A., ii, 195, 303.**
- action of bromine on (v. KORCZYNSKI), A., i, 274.**
- Durylene dibromide, glycol, and diacetate (v. KORCZYNSKI), A., i, 274.**
- Dyeing, theory of (v. BAEYER and VILLIGER), A., i, 380, 769; (KNECHT), A., i, 387; (GNEHM and KAUFLEI; v. GEORGIEVICS), A., i, 635; (ZACHARIAS), A., i, 635, 725; (EBERLE and ULFFERS), A., i, 636.**
- the solution theory of (BROWN and McCRAE), A., ii, 128.**
- with mordants (LIEBERMANN), A., i, 475.**
- a-isoDypnopinalcolin, action of heat on (DELACRE), A., i, 774.**
- E.**
- Earth-nut oil. See Arachis oil.**
- seeds, transformation of fatty substances into sugar in germinating (MAZÉ), A., ii, 346.**
- Earths, rare, spectra of (LANGLET), A., ii, 189.**

- Earths, rare**, place of the metals of the, in the periodic system (STEELE), A., ii, 79; (BRAUNER), A., ii, 312.
error of the "sulphate method" for the determination of the atomic weights of the (BRAUNER and PAVLÍČEK), T., 1248; P., 1901, 63.
double salts of the, with bismuth, isomorphism of (BODMAN), A., ii, 507.
precipitation and separation of the, by aromatic bases (JEFFERSON), A., ii, 534.
separation of, from monazite sand (DROSSBACH), A., ii, 659.
separation of cerium from a mixture of (MEYER and KOSS), A., ii, 262.
of the yttrium group, separation of the (DENNIS and DALES), A., ii, 456.
 See also Cerite metals.
- Ebony**, green, colouring matters of (PERKIN and BRIGGS), T., 210; P., 1902, 11.
- Egonine**, and its additive compounds (HESSE), A., i, 306.
 the optical function of the asymmetric carbon atoms in (GADAMER), A., i, 174.
- Echinoderm embryos**, action of atropine and pilocarpine on (MATHEWS), A., ii, 96.
- Ectogites** from the Aiguilles Rouges (JOUKOWSKY), A., ii, 214.
- Egg albumin**. See Albumin.
- Eggs**, crows', white of, crystalline albumin from the (WORMS), A., i, 65.
 fishes, amount of nitrogen in, during incubation (LEVENE), A., ii, 333.
 frogs' (KOLB), A., ii, 152.
 hens', fat of (THORPE), A., ii, 95.
 iron in (HARTUNG), A., ii, 618.
 sea urchins', prolongation of the life of, by potassium cyanide (LOEB and LEWIS), A., ii, 151.
 and embryos, effect of potassium cyanide and of lack of oxygen on (LYON), A., ii, 333.
- Egg-white**, coagulable components of (LANGSTEIN), A., i, 65.
 fibrinogenous substance in (GAUTIER), A., ii, 622.
- Egg-yolk**, composition of (THORPE), A., ii, 95; (MALCOLM), A., ii, 152.
- Eleelite-syenite** in Madras (HOLLAND), A., ii, 148.
- Elastin** in elastic tissue (RICHARDS and GIES), A., i, 410.
- Elderberry**, red, oil of the (BYERS and HOPKINS), A., ii, 685.
- Elder pith**, constituents of (BROWNE and TOLLENS), A., ii, 420.
- ELECTROCHEMISTRY :—**
- Electrochemistry**, theory of (NERNST), A., ii, 192.
 of double salts (KISTIAKOWSKY), A., ii, 121.
- Accumulators**, lead, estimation of acetic acid in (FORMENTI), A., ii, 363.
- Cells**, acid | alkali |, electrolytic actions developed by (BERTHELOT), A., ii, 547.
 chlorine hydrogen gas, E.M.F. of (MÜLLER), A., ii, 298.
 containing chromic chloride, change of E.M.F. in (MAZZUCHELLI), A., ii, 119.
 Clark, inversion of zinc sulphate in (BARNES and COOKE), A., ii, 486.
 concentration, with immiscible solvents (RIESENFIELD), A., ii, 594.
 E.M.F. of, osmotic pressure of solutions calculated from the (GODELEWSKI), A., ii, 445.
 E.M.F. of an amalgam, new expression for the (HABER), A., ii, 638.
- Daniell, variation of the E.M.F. and of the temperature coefficient of, with the concentration of zinc sulphate (CHAUDIER), A., ii, 239.
 galvanic, and the phase rule (REINDEERS), A., ii, 639.
- gas, E.M.F. of (BOSE), A., ii, 58, 375; (CZEPINSKI), A., ii, 298; (LORENZ), A., ii, 485.
- Grove's gas, secondary reactions in (v. BIRON), A., ii, 1.
 the nitrogen hydrogen gas (BAUR), A., ii, 239.
- oxidation and reduction, theory of (FREDENHAGEN), A., ii, 238.
- founded on the reciprocal action of oxidising and reducing liquids (BERTHELOT), A., ii, 375, 376, 439, 546.
- voltaic, polarisation in (BERTHELOT), A., ii, 439.
- Conductivity** of liquid dielectrics under the influence of radium or Röntgen radiations (CURIE), A., ii, 298; (TOMMASINA), A., ii, 438.
- of concentrated solutions of electrolytes (JONES and GETMAN), A., ii, 489.
- of mixtures of electrolytes (SABAT), A., ii, 591.
- of solutions of mixed electrolytes (WOLF), A., ii, 299.
- of aqueous solutions of electrolytes consisting of univalents (KOHLRAUSCH and v. STEINWEHR), A., ii, 487.

ELECTROCHEMISTRY :—

Conductivity of solvents and solutions and the influence of temperature on it (EVERSHAIM), A., ii, 596.
and atomic heat of metals (STREINTZ), A., ii, 595.
of solutions of barium bromide and iodide, and of calcium bromide, chloride, and iodide (DE COPPET and MULLER), A., ii, 488.
of potassium and sodium hydroxides in glycerol (DI CIOMMO), A., ii, 3.
of some acids and esters (WEGSCHEIDER), A., i, 617, 618.
of α -, β -, γ -, and δ -halogen derivatives of fatty acids (LICHTY), A., i, 201.
of chloro- and bromo-nitrobenzoic acids (HOLLEMAN and DE BRUYN), A., i, 94.
of solutions in ethyl bromide (PLOTNIKOFF), A., ii, 639.
of ferric organic compounds (HANTZSCH and DESCH), A., i, 708.
of nitrobenzene solutions of iodine and potassium iodide (DAWSON and GAWLER), T., 532; P., 1902, 70.
of flames and gases (DE HEMPTINNE), A., ii, 119.
of animal tissues (GALEOTTI), A., ii, 675.

Contact electricity (KNOBLAUCH), A., ii, 117.

Current, syntheses by means of the (LÖB), A., i, 3.
intensity, relation between, and manifestation of electrolysis (BERTHELOT), A., ii, 591.
lines, dispersion of, in electrolytes (PFANHAUSER), A., ii, 3.

Dielectric constants, improved apparatus for the measurement of (DRUDE), A., ii, 439.
of pure solvents (SCHLUNDT), A., ii, 2.
of solvents and solutions, and the influence of temperature on it (EVERSHAIM), A., ii, 596.
in relation to refractive indices of nitrogen compounds (VAN AUBEL), A., ii, 373.
of paraffins (HORMELL), A., ii, 118.

Dielectrics, liquid, conductivity of, under the influence of radium or Röntgen radiations (CURIE), A., ii, 298; (TOMMASINA), A., ii, 438.

Electro-affinity as a basis for the systematisation of inorganic compounds (LOCKE), A., ii, 240; (ABEGG and BODLÄNDER), A., ii, 642.

ELECTROCHEMISTRY :—

Electrocapillary curve, asymmetry of (VAN LAAR), A., ii, 640.
properties of some organic compounds (GOUY), A., ii, 194, 487.

Electric discharge, formation of ozone by the (DE HEMPTINNE), A., ii, 252.
high pressure, action of, on bromine (KELLNER), A., ii, 649.

Electrical discharging action of the decomposition of hydrogen peroxide by light (D'ARCY), A., ii, 297.

Electrical resistance, increase of, caused by alloying iron with various elements (BARRETT), A., ii, 377.
of steel and pure iron (BENEDICKS), A., ii, 439.
metallic sulphides (GUINCHANT), A., ii, 486.
of blood serum (DONGIER and LESAGE), A., ii, 411.

Electric spark, decomposition of water vapour by the (CHAPMAN and LID-BURY), T., 1301; P., 1902, 183.

Electrical waves, influence of, on chemical action (LENGFELD and RANSOM), A., ii, 4.

Electrical properties of alloys of cobalt and copper (REICHARDT), A., ii, 118.

Electrochemical behaviour of sulphur (KÜSTER), A., ii, 640.
equivalent of silver (RICHARDS and HEIMROD), A., ii, 592; (LEDUC), A., ii, 593.
studies with acetylene (BILLITZER), A., ii, 439.

Electrode, hydrogen, depolarisation of the, by aromatic compounds (PAN-CHAUD DE BOTTENS), A., ii, 487.

Electrode potentials (HABER), A., ii, 192.

Anodes, carbon, behaviour of, in the electrolysis of alkali chlorides (SPROESSER), A., ii, 193.
of platinum and of platinum-iridium, behaviour of, in the electrolysis of hydrochloric acid (BRAN), A., ii, 442.
soluble, formation of insoluble precipitates by means of electrolysis with (LE BLANC and BINDSCHEDLER), A., ii, 442.

Cathodes, disintegration and pulverisation of (HABER and SACK), A., ii, 441; (HABER), A., ii, 638.
of lead and mercury, reducing action of, in solutions containing sulphuric acid (TAFEL and SCHMITZ), A., ii, 442.

Electrolysis, laws of, of the vapours of alkali salt (WILSON), A., ii, 640.

ELECTROCHEMISTRY:

Electrolysis, Faraday's law and its range of validity (BOSE), A., ii, 299.
 relation between current intensity and manifestation of (BERTHELOT), A., ii, 591.
 behaviour of diaphragms during (HITTOFF), A., ii, 59.
 of aqueous solutions with platinised electrodes (FOERSTER and FRIESSNER), A., ii, 488.
 of fused salts (LORENZ), A., ii, 591, 640; (BODLÄNDER), A., ii, 640.
 of solutions of alkali chlorides, current and energy efficiencies obtained in the (FOERSTER and MÜLLER), A., ii, 240.
 with carbon anodes (SPROESSER), A., ii, 193.
 with platinised electrodes (FOERSTER and MÜLLER), A., ii, 640.
 of aluminium bromide in ethyl bromide solution (PLOTNIKOFF), A., ii, 639.
 of ammonium chloride and iodide in solution in liquefied ammonia (MORTSAN), A., ii, 71.
 of hypochlorous acid and its salts (FOERSTER and MÜLLER), A., ii, 642.
 of silver nitrate (LEDUC), A., ii, 592.
 of salts of the fatty acids, formation of alcohols and aldehydes by the (HOFER and MOEST), A., i, 736.
 of organic acids, history of (BUNGE), A., i, 338.
 of mixtures of acetone and hydrobromic acid and of acetone and hydrochloric acid (RICHARD), A., i, 133.
 of acetylene or acetylides (BILITZER), A., ii, 593.
 of antimony potassium tartrate (v. HEMMELMAYR), A., ii, 459.
 of *n*-methylgranatoline (PICCININI), A., i, 488.
 of histon and nucleohiston salts (HUISKAMP), A., i, 332.
Electrolytes, conductivity of mixtures of (SABAT), A., ii, 591.
 conductivity of solutions of mixed (WOLF), A., ii, 299.
 consisting of univalent ions, conductivity of aqueous solutions of (KOHLRAUSCH and v. STEINWEHR), A., ii, 487.
 lowering of the freezing point and electrical conductivity of concentrated solutions of (JONES and GETMAN), A., ii, 489.

ELECTROCHEMISTRY:

Electrolytes, determination of the freezing point depression constant for (HEBB), A., ii, 443.
 dispersion of current lines in (PFANHAUSER), A., ii, 3.
 retrograde diffusion of (THOVERT), A., ii, 445.
 precipitation of colloids by (WHITNEY and OBER), A., ii, 65.
 binary, the dissociation theory for, and thermodynamics (PLANCK), A., ii, 597.
 ternary, dissociation of (DRUCKER), A., ii, 3.
Electrolytic action of a pile, detection of the (BERTHELOT), A., ii, 440.
Electrolytic dissociation, theory of, and instantaneous chemical reactions (KAHLENBERG), A., ii, 301.
Electrolytic extraction of copper, theory of the (EGLI), A., ii, 323.
Electrolytic formation of alloys of magnesium and nickel (COEHN), A., ii, 660.
 of chlorates and hypochlorites, current and energy efficiencies obtained in the (FOERSTER and MÜLLER), A., ii, 240.
 of hydroxylamine (TAFEL), A., ii, 559.
 of periodic acid (MÜLLER and FRIEDBERGER), A., ii, 556.
 of lead (LINN), A., ii, 475.
 of lead dioxide (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., ii, 322.
 of colloidal mercury and other metals (BILLITZER), A., ii, 454.
 of metals of the cerium group (MUTHMANN, HOFER, and WEISS), A., ii, 262.
 of persulphates without a diaphragm (MÜLLER and FRIEDBERGER), A., ii, 450.
 of dithionates (FOERSTER and FRIESSNER), A., ii, 488.
 of benzaldehyde (NITHACK), A., i, 291.
 of bromoform (COUGHLIN), A., i, 197.
Electrolytic oxidation of naphthalene (PANCHAUD DE BOTTENS), A., i, 752.
 of pyruvic acid (ROCKWELL), A., i, 740.
 of *p*-toluic acid (LABHARDT), A., i, 289.
Electrolytic phenomena at the surface of separation of two solvents (NERNST and RIESENFELD), A., ii, 594; (HITTOFF), A., ii, 642.

ELECTROCHEMISTRY :—

- Electrolytic reduction** of brucine and of strychnine (TAFEL and NAUMANN), A., i, 53.
of camphorimide (TAFEL and ECKSTEIN), A., i, 43.
of nitric acid in presence of hydrochloric or sulphuric acid (TAFEL), A., ii, 559.
of aromatic nitro-compounds (PINNOW), A., i, 671.
of 2:2'-dinitrodiphenyl (WOHLFAHRT), A., i, 509.
of oximes and phenylhydrazones in sulphuric acid (TAFEL and PFEFFERMANN), A., i, 498.
of pyrroles (DENNSTEDT), A., i, 488.
of cyclic ureides (TAFEL and REINDL), A., i, 15.
Electrolytic synthesis of ammonia (DE HEMPTINNE), A., ii, 450.
Electromotive behaviour of hypochlorous and chloric acids (MÜLLER), A., ii, 591.
Electromotive force, researches on (BERTHELOT), A., ii, 440.
of electrolytic cells, influence of the addition of a salt with one similar ion on the (SACKUR), A., ii, 121.
influence of increase of, on the formation of ozone (CHASSY), A., ii, 486.
of metals in cyanide solutions (CHRISTY), A., ii, 193, 440.
Ions, is the action of, a function of the electrical charge? (LOEB), A., ii, 675.
complex, existence of (STEELE), A., ii, 241.
temperature coefficients of the, in water (KOHLRAUSCH), A., ii, 489.
apparatus for determining the relative velocities of (MATHER), A., ii, 300.
measurement of the electrolytic diffusion, transport numbers, and mobility of (STRANEO), A., ii, 241.
numbers of, in metallo-ammonium compounds (PETERSEN), A., ii, 126.
antitoxic effect of (NEILSON), A., ii, 621.
influence of valency on the antitoxic action of (LOEB), A., ii, 162, 219.
Ionic coefficient of nitric acid (VELEY and MANLEY), A., ii, 316.
mobility, apparatus for the demonstration and determination of (ABEGG), A., ii, 194.
phenomena exhibited by triphenylmethane colouring matters (FISCHER), A., i, 717.

ELECTROCHEMISTRY :—

- Ionic velocities** in aqueous solution, measurement of (STEELE), A., ii, 241; (ABEGG and GAUS), A., ii, 442.
in a flame containing salts (MOREAU), A., ii, 593.
relative, of ions of silver nitrate in solutions of pyridine and acetonitrile (SCHLUNDT), A., ii, 492.
Ionisation, ionic velocities, and atomic sizes (SUTHERLAND), A., ii, 300.
of air (BARUS), A., ii, 59.
of cuprous haloids (BODLÄNDER and STORBECK), A., ii, 502, 607.
spontaneous, of gases (WILSON), A., ii, 240.
Ionised gases, researches on (LANGEVIN), A., ii, 301.
Polarisation in voltaic cells (BERTHELOT), A., ii, 439.
cathodic, and formation of alloys (COEHN), A., ii, 2.
galvanic, transmission of, through platinum and palladium plates (NERNST and LESSING), A., ii, 639.
Depolarisation of the hydrogen electrode by aromatic compounds (PANCHAUD DE BOTTENS), A., ii, 487.
cathodic (BILLITZER), A., ii, 439.
Potentials of alloys, and the formation of superficial layers (HABER and SACK), A., ii, 441; (HABER), A., ii, 638.
of ozone (GRÄFENBERG), A., ii, 449.
Amalgam potentials, and the question whether metals dissolved in mercury are monoatomic (HABER), A., ii, 638.
Discharge potential of hydrogen at a mercury cathode (COEHN and NEUMANN), A., ii, 118.
Reduction-potential of aldehydes (BAUR), A., i, 77.
Potential differences in vapours and in some solid electrolytes (v. HASSLINGER), A., ii, 118.
Transport numbers of ions during electrolysis (HITTORF), A., ii, 58.
of salts, in phenol, determination of the (NERNST and RIESENFIELD; RIESENFIELD), A., ii, 594.
of very dilute solutions (STEELE and DENISON), T., 456; P., 1902, 29.
Voltmeter (coulometer), accuracy of the improved (RICHARDS and HEIMROD), A., ii, 592.

- Elements**, origin of the (HELLSTRÖM), A., ii, 128.
 relations of the (REYNOLDS), T., 612.
 classification of the (ARMSTRONG), A., ii, 553.
 periodic classification of the (BILTZ), A., ii, 201.
 the periodic system of the (STAIG-MÜLLER), A., ii, 129.
 properties of, in relation to their atomic mass (RAMAGE), A., ii, 545.
- Elemi**, various constituents of (TSCHIRCH and CREMER), A., i, 812.
- Embryo-chemical** investigations (LEVENE), A., ii, 333.
- Emerald** from the Uralian Emerald Mines (ZEMJATSCHEWSKY), A., ii, 29.
- Emulsin** (HEUT), A., i, 252.
- Enantiomorphism** of camphor compounds (MINGUIN), A., i, 798.
- Enantiotropy** of tin (COHEN), A., ii, 266.
- Enterokinase** (CAMUS), A., ii, 614.
 in snake venom (DELEZENNE), A., ii, 680.
- Energy value** of diet in man (RUBNER), A., ii, 153.
- Enzyme action** (BROWN), T., 373; P., 1902, 41; (BROWN and GLENDINNING), T., 388; P., 1902, 43.
- Enzymes**, nature of (BOKORNY), A., i, 128.
 in leucocytes and lymph glands which favour tryptic activity (DELEZENNE), A., ii, 616.
 in germinating seeds (BOKORNY), A., ii, 418.
 from malt, isolation of (LINTNER), A., i, 847.
 conversion of pancreatic zymogens into (VERNON), A., ii, 152.
 action of heat on (BEEBE), A., i, 655.
 action of sunlight on (EMMERLING), A., i, 195.
 action of, on each other (WRÓBLEWSKI, BEDNARSKI, and WOJCZYŃSKI), A., i, 196.
 action of, on gentiobiose (BOURQUELOT and HÉRISSEY), A., i, 744.
 action of, on hemicelluloses (GRÜSS), A., i, 713.
 decomposition of carbohydrates by (CLEMM), A., i, 348.
 hydrolysis of acid amides and anilides by (GONNERMANN), A., i, 512.
 oxidation of propylene glycol by (KLING), A., i, 8.
 diastatic, of the suprarenal body (CROFTAN), A., ii, 465.
 digestive, chemical nature of (FRIEDENTHAL and MIYAMOTA), A., i, 655.
- Enzymes**, digestive, of some Lepidoptera (SAWAMURA), A., ii, 673.
 fibrin, time law of the (FULD), A., ii, 675.
 inorganic (MCINTOSH), A., ii, 310.
 pancreatic, synthetic action on dextrose with (HILL), A., ii, 515.
 proteid-dissolving, in malt (EURICH), A., i, 252.
 proteolytic, of Nepenthes (VINES), A., ii, 165.
 of the spleen (LEATHES), A., ii, 615.
 of the thymus (KUTSCHER), A., ii, 153.
 tryptic, production of, from its zymogen (BELLAMY), A., ii, 153.
- Enzymes**. See also :—
 Catalase.
 Chymosin.
 Diastases.
 Emulsin.
 Enterokinase.
 Erepsein.
 Hydrogenases.
 Invertase.
 Jacquemase.
 Kinases.
 Lipase.
 Maltase.
 Oxydases.
 Papain.
 Papayotin.
 Pectinase.
 Pepsin.
 Peptase.
 Philothion.
 Reductases.
 Rennet.
 Rennin.
 Superoxydases.
 Trypsin.
 Tyrosinase.
 Zymase.
 Zymolysin.
- Eosin**, iodo-, as an indicator in volumetric analysis (GLÜCKSMANN), A., ii, 473.
- Epidote** from Phillipopol (KOVÁČ), A., ii, 328.
 from Phippsburg, Maine (HILLEBRAND), A., ii, 463.
- Epiosine** and its identity with 4:5-diphenylene-1-methyliminoazole (VAHLEN), A., i, 727.
 physiological action of (VAHLEN), A., i, 818.
- Epithelium**, ciliated, action of fluorescent materials on (JACOBSON), A., ii, 38.
- Epsomite** from German East Africa (BORNHARDT and KÜHN), A., ii, 667.

Equation of fluids, numerical studies on the (MALLET and FRIDERICH), A., ii, 644.

EQUILIBRIUM:—

Phase rule, application of the, to the fusing points of copper, gold, and silver (RICHARDS), A., ii, 455.

Equilibrium between a solid and its saturated solution at various temperatures (LUMSDEN), T., 363; P., 1902, 31.

in systems of three components, the formation of two liquid phases being possible (MEERBURG), A., ii, 495.

in the system—sodium carbonate, ethyl alcohol, and water (KETNER), A., ii, 308.

heterogeneous, between mixed isomorphous crystals of hydrated salts (BRUNI and MEYERHOFFER), A., ii, 308.

Ternary systems, synthetic analysis in (BROWNE), A., ii, 648.

folding point curves in (SCHREINEMAKERS), A., ii, 61.

Phases, solid, synthetic analysis of (BANCROFT), A., ii, 495.

Vapour phase, composition of the, in the system, water-acetone-phenol (SCHREINEMAKERS), A., ii, 243, 380, 599.

Equilibrium, chemical. See **Affinity**.

Erepsin (COHNHEIM), A., ii, 413, 673.

presence of, in the intestinal juice of dogs (SALASKIN), A., ii, 571.

functions of (COHNHEIM), A., ii, 93.

action of, on abrin and toxins (SIEBER and SCHUMOFSKI-SIMONOWSKI), A., ii, 680.

Ergot of rye (GUÉDRAS), A., ii, 162.

"**Erika**," isomerides of the base of the dye (SCHULTZ and TICHOMIROFF), A., i, 401.

Erythritol, magnetic rotation of (PERKIN), T., 187; P., 1901, 256.

action of selenyl chloride on (CHABRIÉ and JACOB), A., i, 657.

l-**Erythritol**, synthesis and properties of (MAQUENNE), A., i, 131.

d-**Erythronic acid**, and its salts (MORELL and CROFTS), T., 668; P., 1902, 55; (MORELL), A., i, 531.

i-**Erythrulosephenylmethylosazone** (NEUBERG), A., i, 660.

Esmeraldaite from Esmeralda Co., Nevada (EAKLE and SCHALLER), A., ii, 213.

Esterification of acids with phenols (BAKUNIN), A., i, 370.

quantitative, of alcohols and phenols (VERLEY and BÖLSING), A., ii, 54.

Esterification of phosphorous acid by glycerol and glycol (CARRÉ), A., i, 131.

of *as-di-* and poly-basic acids (WEGSCHEIDER), A., i, 617, 618, 619, 620; (WEGSCHEIDER and PISEN), A., i, 619.

in plants, mechanism of (CHARABOT and HÉBERT), A., ii, 99.

Esters, synthesis of, by the action of magnesium organic compounds on β -ketonic esters (GRIGNARD), A., i, 420.

of carboxylic and sulphonic acids, hydrolysis of (WEGSCHEIDER), A., ii, 493.

of hydroxy-acids, action of phenyl carbimide on (LAMBLING), A., i, 537, 603, 756.

of organic acids, action of, on tertiary bases (WILLSTÄTTER and KAHN), A., i, 662.

action of alcohols on (HENRY), A., i, 736.

fatty, α -brominated, condensation of, with trioxymethylene (BLAISE), A., i, 357.

Ethane, formation of (MOISSAN), A., i, 253.

thermal properties of (KUENEN and ROBSON), A., ii, 595.

and hydrogen chloride, isotherms for mixtures of (QUINT GZN), A., ii, 60.

Ethane, tetrabromodinitro- and tetra-chlorodinitro- (BILTZ), A., i, 417.

mono- and *di*-chloronitroso- (PILOTY and STEINBOCK), A., i, 736.

fluorobromo- and fluoroiodo-derivatives of (SWARTS), A., i, 129.

Ethanedicarboxylic acid. See Succinic acid.

Ethanesulphonanilide (AUTENRIETH and RUDOLPH), A., i, 22; (DUGUET), A., i, 429.

Ethanetetracarboxylic acid, ethyl ester (IPATIEFF and SWIDERSKI), A., i, 132.

Ethanetricarboxyltriamide (GUTHZEIT and JAHN), A., i, 659.

Ethanol-methylamine and **-nitroso-methylamine**, benzoyl derivatives of (MARCKWALD and FROBENIUS), A., i, 23.

Ethenylphenylhydrazidine hydrochloride (VOSWINCKEL), A., i, 845.

Ethenyl-3:4-tolylendiamine (FISCHER, RIGAUD, and KOPP), A., i, 189.

Ether. See Ethyl ether.

Ether explosions (v. NEANDER), A., i, 527.

Ethereal sulphate, formation of, in the organism (EMBDEN and GLAESNER), A., ii, 158.

Etherification of alcohols (FISCHER and WEISS), A., i, 402; (VERLEY and BÖLSING), A., ii, 54.

Ethers, $C_2H_5O_2Cl$, and $C_3H_7O_3Cl$, from the action of hydrogen chloride on aqueous formaldehyde (COORS), A., i, 77.

simple, velocity of formation of (ROSENFIELD-FREIBERG), A., ii, 492. decomposition of (NEF), A., i, 8. disappearance of, normally existing in the blood (DOYON and MOREL), A., ii, 571, 672.

Ethers. See also :—

Acetals.

Alizarin methyl ether.

Anæthole.

Anethole.

Anisole.

3-Anisylpyridazine.

Anthragalloyl dimethyl ether.

Anthranols, ethers of.

Anthrarufin ethyl ethers.

Anthronedimethylacetal.

isoApiole.

Benzeneazobromo- α -naphthol ethyl ether.

6-Benzoyl-1:2:4- and -1:4:2-xlenol methyl ethers.

Benzylidene- β -dinaphthyl oxide.

Butenylphenetole.

4-isoButoxy-1- α -hydroxypropylbenzene.

Butyraacetol.

Butyrylphenetole.

Cresols, methyl ethers of.

Crotonacetol.

ψ -Cumenol ethyl ether.

Dianisylphenylimethane.

Dichrysarobin methyl ether.

1:3-Diehydroxybenzene.

Diethoxydimethyl ether.

2:4'-Dihydroxydiphenylmethane diethyl and diethyl ethers.

Dihydroxymethoxymethylbenzene.

2:3-Dihydroxynaphthalene methyl and ethyl ethers.

Dihydroxyphenoxide.

1:3-Dimethoxybenzene.

2:4-Dimethoxydimethyl-5'-bromo-methyl-1-phenol.

2:7-Dimethoxynaphthalene.

Dimethoxyphenoxide.

Dimethylaminodimethylacetal.

4:4'-Dimethyldiphenylene oxide.

2:2'-Diphenol dimethyl and ethylene ethers.

Dithiomylamine ethyl ethers.

4-Ethoxy-1-allylbenzene.

Ethoxybenzene.

Ethoxyisoeugenol.

4-Ethoxy-1- α -hydroxybutylbenzene.

Ethers. See :—

4-Ethoxy-1- α -hydroxypropylbenzene.

2-Ethoxymethyl-4-propenylcatechol ether.

6-Ethoxy-3-methylpyridazine.

6-Ethoxy-3-phenyl-5-methylpyridazine.

p-Ethoxytriphenylcarbinyl ethylether.

p-Ethoxytriphenylmethane.

Ethylcatechol diethyl ether.

Ethyl ether.

Ethylene glycol methyl and propyl ethers.

Ethylene oxide.

Ethylisoeugenol.

Ethyl propyl ether.

Ethylpyrogallol triethyl ether.

Eugenol methyl ether.

Euxanthone methyl ethers.

Excoecarin dimethyl ether.

Gallacetophenone methyl ethers.

Hexylene oxide.

Homocatechol dimethyl ether.

Homoveratrole.

β -Hydroxybutyrapetal.

1-Hydroxycamphene methyl and ethyl ethers.

Hydroxy- ψ -cumylene m-glycol, tri-bromo-, dimethyl ether.

Hydroxydibenzylanthracene ethyl ether.

a-Hydroxydihydroisoeugenol ethers.

a-Hydroxy-p-ethylphenol α -methyl and -ethyl ethers.

5-Hydroxy-5-phenyl-10-methyl-5:10-dihydroacridine, ethers of.

o-Hydroxy-p-xylyl alcohol, methyl ether of.

Hydroxy-p-xylylene bromohydrin, methyl ether of.

Hystazarin dimethyl ether.

Methoxides.

Methoxybenzene.

Methoxydihydroanthracene.

a-Methoxy-p-ethylphenol.

4-Methoxy-1- α -hydroxypropylbenzene.

6-Methoxy-3-methylpyridazine.

p-Methoxy- ω -nitrostyrene.

Methoxyphenanthrenes.

6-Methoxy-3-phenyl-5-methylpyridazine.

p-Methoxytriphenylcarbinol, ethers of.

p-Methoxytriphenylmethane.

Methyl difluoroethyl ether.

Methyleneoxide diacetate.

Methylisoeugenol.

Methylglyceraldehyde, acetal of.

Methylphloroglucinol alkyl ethers.

Myricetin pentamethyl and hexaethyl ethers.

α -Naphthol methyl and ethyl ethers.

1- β -Naphthoxyethylpiperidine.

Ethers. See:—

- Oxanthranyl methyl ether.
2-Phenanthryl methyl and ethyl ethers.
 Phenetole.
 Phenyl ethers.
 Phenylidiansylmethane.
 Phenyl tolyl ethers.
 Phloroglucinol, ethers of.
 Propionylanisole.
 p -Propionylisobutoxybenzene.
 Propionylphenetole.
 4-*iso*Propyldihydroresorcin ethyl ether.
 Purpurogallin trimethyl ether.
 Pyrogallol di- and tri-ethyl ethers.
 Pyromecylon ethyl ether.
 Resorcinol methyl ether.
 Safrole.
*iso*Safrole.
 Storesinol methyl ether.
 Succintetraethylacetal.
 Terpene ethers.
Tetramethyldiaminobenzhydrol, ethers of.
 Tetramethyldiaminodiphenylmethyl oxide.
 Thymyl ethyl ether.
 Tolyl methyl ethers.
 Tri-*p*-anisylchloromethane.
 Trianisylmethane.
 2:3:8-Trihydroxynaphthalene tri-methyl ether.
 Triphenyl-*p*-anisylmethane.
 Undecyl ether.
 Veratrole.
Ethoxide, thallium, density, and refractive and dispersive powers of (KAHLBAUM, ROTH, and SIEDLER), A., ii, 260.
4-Ethoxy-1-allylbenzene. See Anazole.
Ethoxyanilinophosphoric acid, barium salt (CAVEN), T., 1371.
Ethoxyanilinophosphoryl amide and chloride (CAVEN), T., 1371; P., 1901, 26.
4-Ethoxyazoxybenzene, 3:5-dibromo- (JACKSON and FISKE), A., i, 362.
***m*-Ethoxybenzaldehyde and its phenylhydrazone,** tetrachloro- (BILTZ and KAMMANN), A., i, 162.
Ethoxybenzene, dibromoamino- (JACKSON and FISKE), A., i, 362.
2-Ethoxybenzonitrile and 3:5-dinitro- (BLANKSMA), A., i, 281.
***p*-Ethoxybenzyl cyanide** (WERNER), A., i, 627.
7-Ethoxy-2-benzylchromone (HANNACH and v. KOSTANECKI), A., i, 304.
4-Ethoxy-4-isobutylquinolnitrolic acid, 3:5-dinitro-, potassium salt (MEISENHEIMER), A., i, 797.
6-Ethoxychromone and its 2-carboxylic acid (DAVID and v. KOSTANECKI), A., i, 690.
4-(or 5-)Ethoxydeoxybenzoin-2-carboxylic acid and amide (ONNERTZ), A., i, 99.
4'-(or 5')Ethoxydeoxybenzoin-2'-carboxylic acid, and its oxime, and the lactone of the oximic acid (ONNERTZ), A., i, 100.
4-(or 5-)Ethoxydibenzyl-2-carboxylic acid (ONNERTZ), A., i, 100.
6-Ethoxy-1:3-diketo-2-phenylhydrindene (ONNERTZ), A., i, 99.
4-Ethoxy-2:6-dimethylnicotinic acid and its salts and hydrochloride (MICHAELIS and HANISH), A., i, 823.
2-Ethoxy-4:6-dimethylpyrimidine and its compound with mercuric chloride, and 5-bromo-derivative (ANGERSTEIN), A., i, 123.
3-Ethoxy-1:5-diphenyl-1:2:4-triazole (WHEELER and BEARDSLEY), A., i, 503.
Ethoxyisoeugenol (POMERANZ), A., i, 93.
8-Ethoxy- β -hexanone- ϵ -carboxylamide- γ -carboxylic acid, ϵ -cyano-, and its ethyl ester (ERRERA), A., i, 117.
Ethoxyhydrocotarnine (FREUND and BAMBERG), A., i, 557.
4-Ethoxy-1- α -hydroxybutylbenzene (KLAGES), A., i, 610.
4-Ethoxy-1- α -hydroxypropylbenzene and its acetate and phenylurethane (KLAGES), A., i, 609.
Ethoxyindone, chloro- (GLAWE), A., i, 782.
d-Ethoxyindophenazines, α - and β (BURACZEWSKI and MARCHLEWSKI), A., i, 121.
3-Ethoxy-5-keto-1-phenyl-2:5-dihydro-triazole (ACREE), A., i, 242.
2-Ethoxymethyl-4-propenylcatechol ether. See Ethoxyisoeugenol.
6-Ethoxy-3-methylpyridazine (POPPENBERG), A., i, 61.
3-Ethoxyphenanthraquinone (WERNER), A., i, 627.
3-Ethoxyphenanthrene-10-carboxylic acid (WERNER), A., i, 628.
p-Ethoxyphenylacetic acid and its amide (WERNER), A., i, 627.
 α -p-Ethoxyphenyl-*o*-amino- and -*o*-nitro-cinnamic acids (WERNER), A., i, 627.
6-(or 7-)Ethoxy-3-phenyl-1-benzyl-phthalazone (ONNERTZ), A., i, 99.
6-(or 7-)Ethoxy-3-phenylisocarbostyril (ONNERTZ), A., i, 100.
6-(or 7-)Ethoxy-3-phenylisocoumarin, and its dihydride, and the 4-bromo-derivative of the dihydride (ONNERTZ) A., i, 100.

- 6-Ethoxy-3-phenyl-5-methylpyridazine** and its salts (OPPENHEIM), A., i, 187.
- 6-(or 7)-Ethoxy-3-phenylisoquinoline**, 1-chloro- (ONNERTZ), A., i, 100.
- p-Ethoxyphenylsuccinamic acid** and its alkyl substituted derivatives (GILBODY and SPRANKLING), T., 789; P., 1900, 224.
- p-Ethoxyphenylsuccinimide.** See Pyrantin.
- p-Ethoxyphenyl-thiocarbamide** and -cyanamide and its polymeride (HELLER and BAUER), A., i, 445.
- β -Ethoxypthalylacetic acid** (ONNERTZ), A., i, 99.
- 3-Ethoxyquinaldine** (KOENIGS and STOCKHAUSEN), A., i, 693.
- 4-(or 5-)Ethoxystilbene-2-carboxylic acid** (ONNERTZ), A., i, 99.
- p-Ethoxysuccinanic acid.** See *p*-Ethoxyphenylsuccinamic acid.
- Ethoxy-sulphinic acid**, ammonium salt (GOLDBERG and ZIMMERMANN), A., i, 738.
- Ethoxy-p-toluidinophosphoric acid**, barium salt (CAVEN), T., 1372.
- Ethoxy-p-toluidinophosphoryl amide and chloride** (CAVEN), T., 1372; P., 1902, 26.
- p-Ethoxytriphenylcarbinyl ethyl ether** and dibromo- (BISTRZYCKI and HERBST), A., i, 777.
- p-Ethoxytriphenylmethane** and dibromo- (BISTRZYCKI and HERBST), A., i, 777.
- Ethyl alcohol**, synthesis of (FRITZSCHE), A., i, 657.
- pure, preparation of, from strong spirit (YOUNG), T., 707; P., 1902, 104.
- properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTHEY), T., 741; P., 1902, 105.
- properties of mixtures of, with water (YOUNG and FORTHEY), T., 719; P., 1902, 105.
- velocity of reaction of bromine on (BUGARSZKY), A., ii, 9.
- equilibrium between sodium carbonate, water, and (KETNER), A., ii, 308.
- action of magnesium amalgam on (MEUNIER), A., i, 335.
- action of phosphorus trithiocyanate on (DIXON), T., 168; P., 1901, 260.
- compounds of, with chromium haloids (KOPPEL), A., ii, 83.
- compounds of, with cobalt and manganese chlorides (BOURION), A., i, 334.
- formation of hydrates of (SCHMATOLIA), A., ii, 645.
- in milk (TEICHERT), A., ii, 348.
- Ethyl alcohol**, a food or a poison? (KAS-SOWITZ), A., ii, 573.
- and proteid metabolism (NEUMANN), A., ii, 154; (ROSEMAN), A., ii, 274.
- action of, on muscle (LEE and SALANT), A., ii, 274, 675.
- detection of methyl alcohol in (HABERMANN and OESTERREICHER), A., ii, 110; (SCHOORL), A., ii, 703.
- estimation of, by Nicloux's method (POZZI-ESCOL), A., ii, 233.
- estimation of, in ether (FREYER), A., ii, 53.
- Ethyl chloride**, dielectric constant of, and the influence of temperature on it (EVERSHED), A., ii, 596.
- chlorocarbonate, $\alpha\beta\beta\beta$ -tetrachloro- (FARBENFABIKEN VORM. F. BAYER & CO.), A., i, 78.
- Ethyl ether**, dielectric constant of, and the influence of temperature on it (EVERSHED), A., ii, 596.
- compound of, with ferrocyanic acid (BROWNING), A., i, 208.
- estimation of alcohol in (FREYER), A., ii, 53.
- Ethyl ether, difluoro-** (SWARTS), A., i, 130.
- Ethyl iodide**, action of potassium hydride on (MOISSAN), A., i, 253.
- action of, on potassium stannite (PFEIFFER), A., i, 749.
- Ethyl nitrate**, nitration with (WISLI-CENUS and ENDRES), A., i, 541.
- Ethyl propyl ether, difluoro-** (SWARTS), A., i, 130.
- Ethylamine**, action of, on cuminaldehyde and furfuraldehyde (SCHWABBAUER), A., i, 230.
- 4-Ethyl-3-aminopyrazolone** (LOCQUIN), A., i, 704.
- Ethylaniline**, action of formaldehyde on (GOLDSCHMIDT), A., i, 716.
- oxidation of (BAMBERGER and VUK), A., i, 275.
- Ethylbenzene, *p*-iodo-, and iododichloride** (KLAGES and STORP), A., i, 670.
- o*- and *p*-nitro-, and the sodium sulfphonate of the para-compound (SCHULTZ and FLACHSLÄNDER), A., i, 751.
- Ethylbiuret** (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1572.
- Ethyl-*p*-tert.-butylphenylidonium salts, dichloro-** (WILLGERODT and RAM-PACHER), A., i, 19.
- Ethylbutyrylactic acid**, ethyl ester (LOCQUIN), A., i, 705.
- Ethylecarboxyaconic acid** (*pentene-tetra-carboxylic acid*), ethyl ester (RUHE-MANN), T., 1214; P., 1902, 181.

- Ethylcatechol** and its acetyl derivative and diethyl ether, and bromonitro- and nitro-derivatives of the ether (HIRSCHEL), A., i, 540.
- Ethyleno**, production of, from inorganic sources (TUCKER and Moony), A., i, 1.
- heat of combustion and of dissociation of (MIXTER), A., ii, 60.
- Ethylene**, tetrabromo- and tetrachloro-, oxidation of (BILTZ), A., i, 417.
- fluoro- and fluorobromo- derivatives of (SWARTS), A., i, 129.
- Ethylene glycol**, specific heat and heat of vaporisation of (LUGININ), A., ii, 548.
- action of phosphorus trichloride on (CARRE), A., i, 338.
- mono-methyl and -n-propyl ethers and the acetate of the methyl ether (PALOMAA), A., i, 737.
- Ethylene oxide** (WALKER), A., i, 170; (BREDIG), A., i, 230.
- action of magnesium organic compounds on (BLAISE), A., i, 357.
- Ethylenebistetrahydroisoquinoline** (WEDEKIND), A., i, 643.
- Ethylenebis-1-tetrahydroisoquinoline-1-acetic acid** diiodide, ethyl ester, and its isomeride (WEDEKIND), A., i, 643.
- Ethylenediamine**, compounds of, with mercuric salts (CHEMISCHE FABRIK AUF AKTIEN), A., i, 348.
- carbonate (CHEMISCHE FABRIK AUF AKTIEN), A., i, 84.
- Ethylenediaminechromium** salts (PFEIFFER), A., i, 138.
- Ethylenedicarboxylic acid**. See Fumaric acid.
- Ethylenepiperidinium** chloride and its salts, and isomeride (MARCKWALD and FROBENIUS), A., i, 24.
- Ethylenetrimethylenedipiperidylum bromide** (SCHOLTZ), A., i, 835.
- Ethylene-o-, -m-, and -p-xylylenedipiperidylum bromides**, and their salts (SCHOLTZ), A., i, 836.
- Ethylisoeugenol dibromide**, action of methyl alcohol on (POND, ERB, and FORD), A., i, 450.
- Ethylfluorene** (WISLICENUS and DENSCHE), A., i, 291.
- β -Ethylgalactoside** (FISCHER and ARMSTRONG), A., i, 746.
- Ethylhexoylacetic acid**, ethyl ester (LOCQUIN), A., i, 704.
- Ethylhydroxycarbamide** (FRANCESCONI and PARROZZANI), A., i, 140.
- Ethylhydroxyoxamide** and its hydroxylamine salt and acetyl derivative (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1572; P., 1902, 197.
- Ethyldeneacetoacetic acid**, ethyl ester, formula of (GRIGNARD), A., i, 421.
- Ethyldenebisacetoacetic acid**, diethyl ester (RABE and ELZE), A., i, 710.
- α -Ethylidenediglutaconic acid**, ethyl ester (HENRICH), A., i, 422.
- α -Ethylidene glutaric acid** (*pentenedicarboxylic acid*), physical constants of (FICHTER and MÜHLHAUSER), A., i, 204.
- i-Ethyldienelactic acid**. See Lactic acid.
- p-Ethyldenequinone**, tetra-, penta-, and hexa-bromo- (ZINCKE, SIEBERT, and REINBACH), A., i, 608.
- Ethyl-s-iodonitrophenyliodonium** salts, dichloro- (WILLGERODT and ERNST), A., i, 118.
- α -Ethylluteolin** and its tetra-acetyl derivative (v. KOSTANECKI and RÓZYCKI), A., i, 105.
- Ethylmalonic acid**, ethyl ester (FISCHER and DILTHEY), A., i, 270.
- Ethylmercaptohydrocotarnine** and its methiodide (FREUND and BAMBERG), A., i, 557.
- 14-Ethyl- $\beta_1\beta_2\alpha'_1\beta'_1$ naphthacridone** (STROHBACH), A., i, 183.
- Ethyl- β -naphthylamine** camphorsulphonate (REYCHLER), A., i, 757.
- Ethylolhomonicotinic acid**, lactone of, and its salts (KOENIGS), A., i, 180.
- α -Ethylphenol** (STOERMER and KAHLERT), A., i, 457.
- bromo-derivatives of, and their acetates (ZINCKE, SIEBERT, and REINBACH), A., i, 605.
- ψ -p-Ethylphenol**, bromo-derivatives of (ZINCKE, SIEBERT, and REINBACH), A., i, 606; (ZINCKE and LEISSE), A., i, 615.
- 1-Ethylpiperidine**, chloro-, and its salts, and isomeride (MARCKWALD and FROBENIUS), A., i, 24.
- 3-Ethylpiperidyl-4-ethanol** and its aurichloride (KOENIGS), A., i, 395.
- Ethylpiperonylcarboxylic anhydride**, ω -amino- (DOBBIE and LAUDER), T., 159; P., 1901, 256.
- Ethyl propyl ketone** and its semicarbazone (BLAISE), A., i, 164.
- 4-Ethyl-3-propylpyrazolone** (LOCQUIN), A., i, 705.
- 2-Ethylpyridine**, condensation of, with formaldehyde (KOENIGS and HAPPE), A., i, 394.
- 3-Ethylpyridine-4-carboxylic acid** (KOENIGS), A., i, 395.
- 3-Ethylpyridyl-4-ethanol** and its salts (KOENIGS), A., i, 395.
- 3-Ethyl-4-pyridylpropanediol** and its salts (KOENIGS), A., i, 394.

- Ethylpyrogallop** triethyl ether and its nitro-derivatives (HIRSCHEL), A., i, 540.
- 1-Ethyl-2-quinolone**, nitro-derivatives (DECKER), A., i, 494.
- Ethylsalicylidene camphor**, crystallographic properties of (MINGUIN), A., i, 632.
- p*-**Ethylstyrene** (KLAGES), A., i, 612.
- 1-Ethyltetrahydroquinoline-6-, -7-, and -8-carboxylic acids** (FISCHER and ENDRES), A., i, 693.
- 2-Ethyltetrahydroisoquinoline** and its salts, and compound with ethyl iodacetate and benzyl iodide (WEDEKIND and OECHSLEN), A., i, 118.
- α -Ethylthio-butyranilide, -glycollanilide, and -lactanilide** (BECKURTS and FRIEDEMICH), A., i, 764.
- m*-**Ethyltoluidine**, *p*-nitro- (FISCHER, RIGAUD, and KOPP), A., i, 189.
- m*-**Ethyl-*o*-tolylenediamine** (FISCHER, RIGAUD, and KOPP), A., i, 189.
- 4-Ethyl-3:4-tolylenediamine**, and its diacetyl derivative (FISCHER, RIGAUD, and KOPP), A., i, 189.
- Ethytrioxymethylene chloride** (COOPS), A., i, 258.
- 8-Ethylxanthine** (BOEHRINGER & SÖHNE), A., i, 125.
- Eucaine**, α - and β -, identification and properties of (PARSONS), A., i, 231.
- Eucalyptus oils**, aromatic acids and aldehydes from (SMITH), A., i, 102. constituent of peppermint-like odour in (SMITH), A., i, 108.
- amyl eudesmate in (SMITH), A., i, 109. sesquiterpene of (SMITH), A., i, 229.
- Eudesmic acid** and its salts (SMITH), A., i, 109.
- Eugenol** methyl ether from the oil of *Asarum canadense* (POWER and LEES), T., 67; P., 1901, 210. estimation of, in oil of cloves (VERLEY and BÖLSING), A., ii, 54.
- isoEugenol* dibromide and bromo-, and their reactions and acetyl derivatives (AUWERS and MÜLLER), A., i, 212.
- Eurotyopsis Gayoni*, assimilation of lactic acid and glycerol by (MAZÉ), A., ii, 346.
- assimilation of sugar and alcohol by (MAZÉ), A., ii, 345.
- zymase of (MAZÉ), A., ii, 622.
- Euxanthic acid** and its salts and acetyl derivatives (GRAEBE, ADERS, and HEYER), A., i, 39.
- Euxanthone** methyl ethers (GRAEBE and ADERS), A., i, 42.
- Excoecarin** and its tribenzoyl derivative and dimethyl ether (PERKIN and BRIGGS), T., 212; P., 1902, 11.
- Excoecarone** (PERKIN and BRIGGS), T., 215; P., 1902, 11.
- Excretion** of allantoin (MENDEL), A., ii, 276.
- of glycuronic acid (MAYER), A., ii, 616.
- of glycuronic acid, indoxyl, and phenol in phloridzin diabetes (LEWIN), A., ii, 272; (MAYER), A., ii, 520.
- of lithium (GOOD), A., ii, 276.
- of phosphoric acid in flesh and vegetable feeders (BERGMANN), A., ii, 276.
- See also Urine.
- Expansion** of liquids, formula for the (MALLET and FRIDERICH), A., ii, 644.
- Expansion coefficient** of magnesium chloride solutions (BREMER), A., ii, 76.
- of volatile oils (SCHREINER and DOWNER), A., i, 108.
- Extraction apparatus** (STEPHANI and BÖCKER), A., ii, 556.
- for liquids by chloroform (PREGL), A., ii, 202.
- for solvents with high and low boiling points (LANDSIEDL), A., ii, 390.

F.

- Fabrics**, estimation of indigotin in (BINZ and RUNG), A., ii, 544.
- Factories**, air of (HALDANE), A., ii, 671.
- Fæces**, combined glycuronic acid in normal (BIAL; BIAL and HUBER), A., ii, 679.
- solution and estimation of coagulated proteids in (OEFEL), A., ii, 369.
- human, purine derivatives in (KRÜGER and SCHITTENHELM), A., ii, 412.
- analysis of (URY), A., ii, 159.
- Fahlerz** from New Jersey (CHESTER), A., ii, 611.
- Faraday's law** and its range of validity (BOSE), A., ii, 299.
- Farmyard manure**. See Agricultural Chemistry.
- Fat**, human, composition of (JAECKLE), A., ii, 676.
- composition of the, in children (SIEGERT), A., ii, 34.
- formation of, from carbohydrate diet (LEHMANN and VOIT), A., ii, 155.
- iodised, formation of, in the mammary glands (JANTZEN), A., ii, 273.
- respiratory exchange during the deposition of (PEMBREY), A., ii, 149.
- refractive indices of—correction for temperature (TOLMAN and MUNSON), A., ii, 709.

- Fat**, determination of the solidifying point of (SHUKOFER), A., ii, 196.
 action of superheated steam on (KLIMONT), A., i, 202.
 influence of, on protein metabolism (TALLQVIST), A., ii, 273.
 transference of, in phosphorus poisoning (KRAUS and SOMMER), A., ii, 342.
 absorption of (PFLÜGER), A., ii, 155, 273.
 feeding experiments with, on the milk of goats and sheep (BEGER, DOLL, FINGERLING, HANCKE, SIEGLIN, ZIELSTORFF and MORGEN), A., ii, 101.
 amount of, in milk as milking proceeds (ACKERMANN), A., ii, 168, 466.
 variation of the amount of, in milk (MALPEAUX and DOREZ), A., ii, 40.
 effect of feeding on the amount of, in milk (MALPEAUX and DOREZ), A., ii, 168; (MALPEAUX and DELATTRE), A., ii, 526; (SJOLLEMA), A., ii, 527.
 behaviour of, during autolysis of the liver (SIEGERT), A., ii, 34.
 proportion of liquid fatty acids in, and their iodine values (LANE), A., ii, 184.
 animal, mixed glycerides in (HANSEN), A., i, 339.
 formation of sugar from (LOEWI), A., ii, 273.
 of hens' eggs (THORPE), A., ii, 95.
 dark coloured, sharp indicator for titrating (FREUNDLICH), A., ii, 115.
 application of iodine bromide in the analysis of (HANS), A., ii, 112; (JUNGCLAUSSEN), A., ii, 294.
 detection of vegetable fats in animal, by the phytosteryl acetate test (BÖMER), A., ii, 184.
 estimation of, in bread, and its nature (BERNTROP), A., ii, 366.
 estimation of, in fodders (BEGER), A., ii, 367.
 estimation of, in milk by means of the refractometer (HALS and GREGG), A., ii, 708.
 in sheep's milk, use of Gerber's apparatus for the estimation of (BEGER and WOLFS), A., ii, 482.
 quantitative separation of cholesterol from (RITTER), A., ii, 111.
- Fats.** See also :—
 Butter.
 Lard.
 Margarine.
 Milk.
 Tallow.
 Wool fat.
- Fat mixtures**, calculation of the percentage of diglycerides in, containing hydroxy-fatty acids (FREUNDLICH), A., ii, 184.
- Fatty series**, substitution process in the (MICHAEL, GRAVES, and GARNER), A., i, 69.
- Felspar** from Southern Bohemia (ZELIZKO), A., ii, 332.
- Fenchene**, formula of (KONDAKOFF), A., i, 478; (WALLACH), A., i, 635.
- Fenchone**, some reactions of (TARDY), A., i, 632.
- Fenchoneimine** and its oxidation and transformation by atmospheric oxidation, and its methyl iodide and picrate (MAHLA), A., i, 106.
- Fenethyl alcohol**, formula of (KONDAKOFF), A., i, 478.
- l*-**Fenethylxanthamide** (TSCHUGAEFF), A., i, 630.
- Fermentation**, theory of (RICHTER), A., ii, 681.
 of cellulose (OMELIAŃSKI), A., ii, 468.
 of sucrose by a mucus-forming bacillus (SCHARDINGER), A., ii, 469.
 aerobic, of farmyard manure (DUPONT), A., ii, 577.
 alcoholic, formation of volatile acids and hydrogen sulphide in (SEIFERT), A., ii, 98.
 production of hydrogen sulphide in (POZZI-ESCOR), A., ii, 577.
 of the must of Indian figs (ULPIANI and SARCOLI), A., ii, 164.
 butyric (SCHATTENFROH), A., ii, 467.
 lactic (BEYERINCK), A., ii, 97.
- Fermentation process**, animal (WEINLAND), A., ii, 155, 412.
- Ferments.** See Enzymes.
- Ferribenzoyletic acid** and **Ferrioxalacetic acid**, ethyl esters (HANTZSCH and DESCH), A., i, 708.
- Ferric compounds.** See under Iron.
- Ferricyanic acid**, thallium and potassium thallium salts (FISCHER and BENZIAN), A., i, 272.
- Ferrisalicyclic acid** (HANTZSCH and DESCH), A., i, 708.
- Ferrocyanic acid**, compound of, with ether (BROWNING), A., i, 208.
 compounds of, with organic oxygen compounds (v. BAAYER and VILLIGER), A., i, 356.
- Ferrocyanic acid**, thallium and potassium thallium salts (FISCHER and BENZIAN), A., i, 272.
- Ferrromolybdenum**, estimation of molybdenum in (BRAKES), A., ii, 533.
- Ferrosilicon**, condition of silicon in (LEBEAU), A., ii, 135.

- Ferrosilicon**, estimation of silicon in (RAMORINO), A., ii, 355 ; (NORRIS), A., ii, 474.
- Ferrous compounds**. See under Iron.
- Fever**, proteid metabolism in (WEBER), A., ii, 277.
- Fibrin**, catalytic properties of (POZZI-ESCOLI), A., i, 654.
peptic digestion of (PICK), A., ii, 673.
- Fibrin ferment**, time law of the (FULD), A., ii, 675.
- Fibrinogenous substance** in egg-white (GAUTIER), A., ii, 622.
- Fibroin** from silk, hydrolysis of (FISCHER and SKRITA), A., i, 654.
- Figs**, Indian, alcoholic fermentation of the must of (ULPIANI and SARCOLI), A., ii, 164.
- Filicyl-n-butanone**, and its bromo-derivative, salts, hydrate, and phenyl-carbamide (BOEHM), A., i, 36.
- Filixic acid**, constitution of (BOEHM), A., i, 38.
- Filter paper**, a source of error in chemical analysis (MANSIER), A., ii, 690.
- Fire-clay** from Moravia (KOVÁČ and HAŠKOVEC), A., ii, 31.
- Fish**, coagulation of the blood of (RODIER), A., ii, 215.
American, ichthylepidin in the scales of (GREEN and TOWER), A., ii, 415.
- Fish gill**, physiology of the (FREDERICQ), A., ii, 151.
- Flames**, coloured, method for the production of (STSCHEGLAYEW), A., ii, 57.
electrical conductivity of (DE HEMPTINNE), A., ii, 119.
phenomenon observed in the inversion of (MAMELI and COMELLA), A., ii, 4.
- Flasks**, volumetric, instrument for marking (WILLIAMS), A., ii, 391.
- Flavaspidic acids**, α - and β -, and their diacetyl and tribenzoyl derivatives (BOEHM), A., i, 37.
- Flavone group**, dyeing properties of some members of the (PERKIN and WILKINSON), T., 589.
- Florence's crystals** (BOCARIUS), A., ii, 274.
- Flour**, estimation of starch in (GIAN-TURCO), A., ii, 705.
- Fluidity** of sodium chloride solutions, temperature variations of the (LYLE and HOSKING), A., ii, 440.
- Fluoran** nitrate and sulphate (HEWITT and TERVET), T., 664 ; P., 1902, 86.
- Fluorene** and its carboxylic acid, synthesis of (DELACRE), A., i, 783.
- Fluorene**, potassium derivative of (AKTIEN GESELLSCHAFT FÜR THEER- & ERDÖL-INDUSTRIE), A., i, 364.
- Fluorene**, 2-mono- and 1:2-di-amino- and 1- and 7-nitro-2-amino- (DIELS, SCHILL, and TOLSON), A., i, 758.
- Fluoreneoxalic acid**, phenylhydrazone of, and oxime and benzoyl derivatives of the ethyl ester (WISLICENUS and DENSH), A., i, 291.
- Fluorenequinoline** and its derivatives (DIELS and STAHLIN), A., i, 829.
- Fluorenitetrahydroquinoline** and its nitroso-, nitrosoamine and phenyl-carbamide derivatives (DIELS and STAHLIN), A., i, 829.
- Fluorenone-5-carboxylic acid** and chloride (GÖTZ), A., i, 372.
- Fluorenonequinoline** and its methiodide (DIELS and STAHLIN), A., i, 830.
- Fluorescein**, $C_{30}H_{18}O_5$, from diphenyl-tetrenecarboxylic anhydride and resorcinol (LANSER and HALVORSEN), A., i, 459.
- Fluorescein** hydrochloride and sulphates (HEWITT and TERVET), T., 665 ; P., 1902, 86.
bromonitro-derivatives, and their diacetyl and dibenzoyl derivatives and sodium salts (HEWITT and WOODFORDE), T., 893 ; P., 1902, 128.
- Fluorescence**, theory of (VOIGT), A., ii, 57.
- Fluorescent materials**, action of, on ciliated epithelium (JACOBSSON), A., ii, 38.
- Fluoridine**, $C_{36}H_{21}N_5Cl_4$, from 5:4'-dichloro-2-aminodiphenylamine (WILBERG), A., i, 314.
- Fluoridine**, new synthesis of (NIETZKI and SLABOSZEWCZ), A., i, 125.
- Fluorine**, amount of, in bones and teeth (JODLBAUER and BRANDL), A., ii, 34.
- Hydrofluoric acid** (*hydrogen fluoride*), estimation of, in aqueous solution (WINTERER), A., ii, 287.
- Fluorides**, detection of, in butter (O. and C. W. HEHNER), A., ii, 529.
- Fluorine**, estimation of, in fluorides easily decomposable by sulphuric acid (BURK), A., ii, 170.
estimation of, in musts and wines (WINDISCH), A., ii, 104.
- Fluorovanadium** compounds (MELIKOFF and KASANEZKY), A., ii, 27.
- Fodders**, estimation of fat in (BEGER), A., ii, 367.
- Folding point curves** in ternary systems (SCHREINEMAKERS), A., ii, 61.
- Food**, energy value of, in man (RUBNER), A., ii, 453.
calorific and nutritive value of (FRENTZEL and TORIYAMA), A., ii, 216.

- Food**, digestibility of, in the stomach (FERMI), A., ii, 216.
 detection of traces of arsenic in (BERNTROP), A., ii, 225.
 detection and estimation of small quantities of arsenic in (REPORT OF JOINT COMMITTEE), A., ii, 288.
 detection of benzoic acid and alkali benzoates in (DE BREVANS), A., ii, 112.
 detection of formaldehyde in (ARNOLD and MENTZEL), A., ii, 367, 480.
 detection of salicylic acid in (TAFFE), A., ii, 292.
- Foresite** from the Elba granite (MANASSE), A., ii, 90.
- Formaldehyde** (RAIKOW), A., i, 344.
 interaction of, with acetonylacetone (KNORR and RABE), A., i, 18.
 action of, on acetylphenylhydrazine, the esters of the aminobenzoic acids, benzoylmethyl, ethylaniline, phenylhydrazine, and on resacetophenone (GOLDSCHMIDT), A., i, 716.
 condensation of, with diaminoanthraquinones (BADISCHE ANILIN- & SODA-FABRIK), A., i, 119.
 action of, on anthranilic acid (GOLDSCHMIDT), A., i, 371; (HELLER and FIESELLEMMANN), A., i, 779.
 action of, on methyl anthranilate (MEHNER), A., i, 676.
 action of, on creatine and creatinine (JAFFE), A., i, 748.
 action of, on *tert.-m*-diamines (MORGAN), T., 657; P., 1902, 87.
 action of hydrogen chloride on aqueous (COOPS), A., i, 77.
 condensation of, with 4-methyl-3-ethyl-pyridine (KOENIGS), A., i, 394.
 action of, on *p*-nitroaniline (MEYER and STILLICH), A., i, 319.
 action of, on *p*-nitrophenol (BORSCHE), A., i, 836.
 condensation of, with 2-picoline and 2-ethylpyridine (KOENIGS and HAPPE), A., i, 394.
 condensation of, with pyridine and quinoline derivatives (KOENIGS), A., i, 179, 180.
 compounds of, with citric and with tartaric acids (STERNBERG), A., i, 259.
 use of, for discriminating between basic and acidic functions in solutions of amino-acids (SCHIFF), A., i, 85.
 use of, for discriminating between basic and acidic functions in protein solutions (SCHIFF), A., i, 250.
 use of, for the detection of nicotine (SCHINDELMEISER), A., ii, 115.
- Formaldehyde**, physiological action of (KOCHE), A., ii, 165.
 detection and estimation of methyl alcohol in commercial (DUYK), A., ii, 110.
 detection of, in foods (ARNOLD and MENTZEL), A., ii, 367, 480.
 detection of, in milk (RIEGLER), A., ii, 585.
 estimation of (VANINO and SEITTER), A., ii, 55; (PFAFF), A., ii, 705.
 estimation of, gravimetrically (VANINO), A., ii, 115.
- Formaldehyde, trithio-**, preparation of (VANINO), A., i, 744.
- Metaformaldehyde.** See Trioxymethylene.
- Formamide**, substituted, in the air (HENRIET), A., i, 714.
- Formamidines**, preparation and reactions of derivatives of (DAINS), A., i, 602.
- Formic acid**, new synthesis of (MOISSAN), A., i, 255.
- Orthoformic acid** ethyl ester, compounds of, with phenetidine and with *m*- and *p*-aminobenzoic acids and their esters (GOLDSCHMIDT), A., i, 785.
- Formula**, $d = \frac{0.02 T^2}{L}$, new proof of (LENGFELD), A., ii, 5.
- Formylacetylphenylbenzylidenetriazan** (WOHL and SCHIFF), A., i, 578.
- Formylphenylacetic acid**, menthyl ester (COHEN and BRIGGS), P., 1902, 172.
 and its metallic, acetyl, benzoyl, and phenylcarbamate derivatives (LAPWORTH and HANN), T., 1494; P., 1902, 144.
- N-Formyl-*o*-phenylhydroxylamine** (BAMBERGER), A., i, 279; (BAMBERGER and DESTRAZ), A., i, 539.
- Forsterite** from Kandy, Ceylon (ARSANDAUX), A., ii, 329.
- Fowls** fed on meat, urine and kidneys of (HOUSSAY), A., ii, 218.
 digestion of maize by (PARASCHTSCHUK), A., ii, 525.
- Fractional distillation.** See Distillation.
- Fractionation apparatus** (MICHAEL GRAVES, and GARNER), A., i, 70
- Fragaria vesca.** See Strawberries under Agricultural Chemistry.
- Frangula bark**, glucoside of (AWENG), A., i, 725.
- Freezing point** of concentrated solutions of electrolytes, lowering of the (JONES and GETMAN), A., ii, 489.
 of aqueous hydrogen peroxide, lowering of the (JONES, BARNES, and HYDE), A., ii, 203.

- Freezing point** of a solution at constant temperature, determination of (PRYTZ), A., ii, 382.
- Freezing point curves** of phthalic anhydride and water and of succinic anhydride and water (VAN DE STADT), A., ii, 598.
- Freezing point depression constant** for electrolytes, determination of the (HEBB), A., ii, 443.
- Freezing point.** See also Cryoscopy.
- d-Fructose.** See Lævulose.
- Fruits**, polarisation of (TOLMAN), A., ii, 537.
- grown in southern climes, occurrence of boric acid in (v. LIPPmann), A., ii, 523.
- South European, sugars and organic acids in some (BORNTRAEGER), A., ii, 347.
- dried, estimation of sulphurous acid in (BEYTHIEN and BOHRISCH), A., ii, 472.
- preserved, containing starch sugar, estimation of sucrose in (SCHREFFELD), A., ii, 536.
- Fuel**, determination of the calorific power of (ANTONY and DI NOLA), A., ii, 4.
- detection and estimation of small quantities of arsenic in (REPORT OF JOINT COMMITTEE), A., ii, 288.
- See also Coal.
- Fumaric acid** (*ethylenedicarboxylic acid*), chloro-, ethyl ester, action of alkylmalonic esters on (RUHEMANN), T., 1212; P., 1902, 181.
- action of, on guaiacol, and on α - and β -naphthol (RUHEMANN), T., 421; P., 1902, 45.
- Fungi**, nitrogenous constituents of certain (WINTERSTEIN and HOFMANN), A., ii, 622.
- composition of the proteids and cell-membranes in (IWANOFF), A., ii, 279.
- blue coloration of certain (BERTRAND), A., i, 220; ii, 166.
- assimilation of, as compared with that of green plants (BOKORNY), A., ii, 345.
- edible, composition of (ZEGA), A., ii, 849.
- Furfuraldehyde**, estimation of, in pepper (HILGER), A., ii, 185.
- Furfuran**, nitration of (MARQUIS), A., i, 483.
- $\alpha\alpha$ -dinitro- (HILL and WHITE), A., i, 388.
- Furfurandicarboxylic acid** and its salts and esters (YODER and TOLLENS), A., i, 49; (TOLLENS), A., i, 230.
- Furfuran group**, studies in the (FEIST), A., i, 488; (KEHREIN), A., i, 562.
- Furfuransulphonic acid**, nitro-, and its potassium salt (HILL and WHITE), A., i, 388.
- Furfuryl alcohol**, carbamate, and diphenylcarbamate (ERDMANN), A., i, 553.
- Furfurylcarbamic acid**, esters (CURTIUS and LEIMBACH), A., i, 302.
- β -Furfurylglutaric acid (KNOEVENAGEL), A., i, 226.
- Furfurylidene-methylamine** and -ethylamine (SCHWABBAUER), A., i, 230.
- Furfurylidenenitromethane** (BOUVEAULT and WAHL), A., i, 683.
- Furfuryl-methylamine** and -ethylamine and their salts (SCHWABBAUER), A., i, 230.
- α -Furfuryl- β -octinyl alcohol and -carbinol (MOUREU and DESMOTS), A., i, 289.
- Furfurylphenylacetylenenecarbinol** (MOUREU and DESMOTS), A., i, 289.
- Furnace**, new, heated by the oxy-hydrogen blowpipe (MOISSAN), A., ii, 122.
- Fusel oil** from grain, *n*-butyl alcohol in (EMMERLING), A., i, 253.
- estimation of, in alcoholic liquids (BECKMANN), A., ii, 178.
- separation of amyl alcohols from (MARCKWALD), A., i, 418.
- Fusibility** of minerals (DOELTER), A., ii, 28.
- Fusion** and crystallisation (DUHEM), A., ii, 61.
- G.
- Gahnite** from Färila, Sweden (HESTRÖM), A., ii, 405.
- δ -Galactan, gelatinisation of (LEVITES), A., ii, 312.
- Galactonic acid, chloro-, and its amide and piperide (RUFF and FRANZ), A., i, 259.
- Galactonolactone (RUFF and FRANZ), A., i, 259.
- Galactose, magnetic rotation of (PERKIN), T., 189; P., 1901, 256.
- separation of, from dextrose by *Saccharomyces Ludwigi* (THOMAS), A., ii, 344.
- Galactose- β -naphthylhydrazone, isomeric (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 747.
- Galactosido-dextrose and galactose (FISCHER and ARMSTRONG), A., i, 746.
- Galanga oil**, constituents of (SCHINDELMEISER), A., i, 551.
- Gallacetophenone methyl ethers (PERKIN and WILSON), P., 1902, 215.

- Gallic acid** and its acetyl derivatives and their nitro-compounds, and its amino-derivatives, ethyl esters (POWER and SHEDDEN), T., 73; P., 1901, 242.
bismuth derivative (THIBAULT), A., i, 101, 290.
- Gallic acid**, ethyl ester, destructive distillation of (PERKIN), P., 1902, 254.
 methyl ester, anhydrous (MAZZARA), A., i, 160.
- Gallic acid**, and its halogen derivatives and their esters, affinities of, in relation to their constitution (COPPADORO), A., i, 784.
- dibromo*- and 2:6-chlorobromo-, methyl and ethyl esters (GUARNIERI), A., i, 161.
- Gambier Catechu**, constituents of (PERKIN and YOSHITAKE), T., 1160; P., 1902, 139.
- Garnet** from Colombia (REISS and STÜBEL), A., ii, 91.
 from German East Africa (BORNHARDT and KÜHN), A., ii, 667.
 from the Ilmen Mountains (SUSCHTSCHINSKY), A., ii, 30.
- Gas**, inflammable, in the Netherlands (LORIÉ), A., ii, 146.
 new, from radium (RUTHERFORD and BROOKS), A., ii, 438.
 changes in the composition of, injected into the subcutaneous tissues (PLUMIER), A., ii, 150.
 water, apparatus for demonstrating the manufacture of (WATERS), A., ii, 255.
- Gas analysis** by combustion (HEMPEL), A., ii, 627.
 Hempel's apparatus, modification of (RICHARDS), A., ii, 286.
- Gas-purifying material**, spent, estimation of Prussian blue in (BERNHEIMER and SCHIFF), A., ii, 361.
- Gas washing apparatus** (STROMEYER), A., ii, 251; (TISTSCHENKO), A., ii, 312.
- Gases**, purification of (DE VISSER), A., ii, 65.
 electrical conductivity of (DE HEMPTINNE), A., ii, 119.
 conditions determinative of chemical change and of electrical conduction in (ARMSTRONG), A., ii, 546.
 specific heat of (CROMPTON), P., 1902, 188.
 solubility of, in organic solvents and in their solutions (LEVI), A., ii, 247.
 ionised (LANGEVIN), A., ii, 301.
 spontaneous ionisation of (WILSON), A., ii, 240.
- liquefied, in sealed tubes, new method of manipulating (MOISSAN), A., ii, 66.
- Gases**, luminescence of, influence of radioactive substances on the (DE HEMPTINNE), A., ii, 58.
 in blood at different altitudes during a balloon ascent (TISSOT and HALLION), A., ii, 150.
 composition of hydrates of (DE FORCRAND), A., ii, 446.
 natural, inapplicability of Winkler's method of fractional combustion of hydrogen to the examination of (CHARITSCHKOFF), A., ii, 529.
- Gaseous mixtures**, liquefaction of (CAUBET), A., ii, 382; (KUENEN), A., ii, 491.
- Gasholder**, 'Pepys', modification of (HABERMANN and OESTERREICHER), A., ii, 201.
- Gastric juice**, detection and estimation of lactic acid in (VOURNASOS), A., ii, 364.
 estimation of pepsin in (MEUNIER), A., ii, 236.
 See also Digestion.
- Geese**, ammonia and lactic acid in the blood of (KOWALEWSKI and SALASKIN), A., ii, 619.
 effect of acids and alkalies on the urine of (KOWALEWSKI and SALASKIN), A., ii, 619.
- Gelatin**, behaviour of (PAULI and RONA), A., ii, 388.
 from silk, hydrolysis of (FISCHER and SKITA), A., i, 654.
 hydrolysis of (FISCHER, LEVENE, and ADERS), A., i, 512; (FISCHER), A., i, 699.
 action of trypsin on (REICH-HERZBERGE), A., i, 252.
 nutritive value of (KRUMMACHER), A., ii, 157.
 the aromatic group in (SPIRO), A., i, 192.
 formation of acetone and isovaleraldehyde from (NEUBERG and BLUMENTHAL), A., ii, 516.
 and glues, evolution of (MÜLLER), A., ii, 587.
 detection of, in jams (DESMOULIÈRE), A., ii, 588.
- Gelatinisation** of δ-galactan, gluten, and starch (LEVITES), A., ii, 312.
- Gelose**, detection of, in jams (DESMOULIÈRE), A., ii, 588.
- Gentiobiose**, crystallised, preparation and properties of (BOURQUELOT and HÉRISSEY), A., i, 713.
 action of enzymes and top yeast on (BOURQUELOT and HÉRISSEY), A., i, 744.
- Geocronite (kilbrickenite)** (PRIOR), A., ii, 404.
 from Val di Castello, Tuscany (D'ACHIARDI), A., ii, 211.

- Geraniol** from the oil of *Asarum canadense* (POWER and LEES), T., 66; P., 1901, 210.
- α -cycloGeraniolene** and its nitrosate, nitrosochloride, nitrobenzylamine, and nitrolepiperidine (WALLACH and SCHEUNERT), A., i, 724, 805.
- Germanium** hydride (VOEGELEN), A., ii, 401.
- Germination.** See Agricultural Chemistry.
- Gibbsite** from India (WARTH), A., ii, 328.
- Ginkgo biloba nuts**, composition of (SUZUKI), A., ii, 685.
- Gitonic acid** (KILIANI and MERK), A., i, 47.
- Glands**, Brunner's, function of (GLAESNER), A., ii, 35.
- lymph, enzyme in, which favours tryptic activity (DELEZENNE), A., ii, 616.
- amount of iron in (GUILLEMONT and DELAMARE), A., ii, 217.
- mammary, formation of iodised fat in the (JANTZEN), A., ii, 273.
- suprarenal. See Suprarenal.
- thymus, proteolytic enzyme from the (KUTSCHER), A., ii, 153.
- thyroid, sheep's, amount of iodine in (WOHLMUTH), A., ii, 274.
- Glass**, plastic and adhesive properties of (PICCARD), A., ii, 5.
- Glauber salt.** See Mirabilite.
- Glaucophane** from Chateyroux (Gressoney Valley) (ZAMBONINI), A., ii, 332.
- Globulin** as alkali-proteid (WOLFF and SMITS), A., i, 67.
- Glomellic acid**, **Glomelliferin**, and **Glomellin** (ZOFF), A., i, 465.
- α -Glucohexitose**, behaviour of, in the animal body (WOHLGEMUTH), A., ii, 616.
- diphenylhydrazone and phenylmethylhydrazone (WOHLGEMUTH), A., i, 712.
- Gluco- α -hydroxyphenylethylcarbinol** (FISCHER and SLIMMER), A., i, 621.
- Glucophosphoric acid** (LEVENE), A., i, 347.
- Gluco-proteids** of lower animals (v. FÜRTH), A., ii, 35.
- Glucosamine** (*chitosamine*), from the hydrolysis of serum-albumin (LANGSTEIN), A., i, 331.
- birotation of (SUNDVIK), A., i, 137.
- derivatives (ROUX), A., i, 266.
- hydrochloride and hydrobromide β -nitrophenylhydrazone (NEUBERG and WOLFF), A., i, 84.
- detection of (NEUBERG and WOLFF), A., i, 84; (STEUDEL), A., i, 399.
- d-Glucose.** See Dextrose.
- Glucoside**, soluble hydroxyanthraquinone, in Barbados aloes (AWENG), A., i, 814.
- of frangula bark (AWENG), A., i, 725.
- Glucosides**, synthesis of (FISCHER and ARMSTRONG), A., i, 263, 746.
- formaldehyde derivatives of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 745.
- detection and estimation of, in plants by means by emulsin (BOURQUELOT), A., ii, 55.
- Glucosides.** See also :—
- Albaspidin.
 - Amygdalin.
 - Aucubin.
 - Crocin.
 - Dhurrin.
 - Digitogenin.
 - Digitonin.
 - Dihydroœsculetin.
 - Indian.
 - Myricitrin.
 - Myrticlorin.
 - Osyritrin.
 - β -Phenolgalactoside.
 - Phloridzin.
 - Phoenin.
 - Picrocerocin.
 - Robinin.
 - Salicin.
 - Salinigrin.
 - Saponarin.
 - Styrogenin.
 - Tetra-acetylhelicin.
 - Tetra-acetyl- α -and- β -methylglucoside.
 - Triacetyl methylglucoside.
 - Violaquercitrin.
- Glucosidegalactose** (FISCHER and ARMSTRONG), A., i, 746.
- Glucosone**, preparation and oxidation of (MORRELL and CROFTS), T., 666; P., 1902, 55; (MORRELL), A., i, 531.
- Glutaconic acid** (*propylenedicarboxylic acid*), ethyl ester, and its sodium and formazylderivatives (HENRICH), A., i, 422.
- dicyano-*, sodium derivative, ethyl ester (ERRERA and PERCIABOSCO), A., i, 116.
- Glutamic acid**, separation of, from leucine by gaseous hydrogen chloride (ETARD), A., ii, 182.
- Glutaric acid** (*n-pyrotartaric acid*; *propylenedicarboxylic acid*), action of bromine on (PAOLINI), A., i, 658.
- Glutaric acids**, substituted, separation of the *cis*- and *trans*- forms of (THORPE and YOUNG), P., 1902, 247.
- Glutarimide**, formation of (BOGERT and ECCLES), A., i, 271.

- Gluten**, gelatinisation of (LEVITES), A., i, 312.
Gluten proteid, utilisation of, by Ruminants (KELLNER), A., ii, 168.
Glutinopeptone (FAHRNION), A., i, 846.
Glycerides of fatty acids with double melting point (KREIS), A., i, 529.
 mixed, in animal fat (HANSEN), A., i, 339.
Glycero-arsenic acid (AUGER), A., i, 255.
Glycerol (*glycerin*), action of phosphorus trichloride on (A. and L. LUMIÈRE and PERRIN), A., i, 9 ; (CARRÉ), A., i, 338.
 in the blood (DOYON and MOREL), A., ii, 672.
 transformation of, into sugar, by testicular tissues (BERTRAND), A., ii, 159.
 commercial, assay of (GAILHAT), A., ii, 361.
 detection of arsenic in (BOUGAULT), A., ii, 530 ; (BARTHE), A., ii, 703.
 estimation of (ZEISEL and FANTO), A., ii, 111, 585.
 estimation of, by means of iodine acid (CHAUMEIL), A., ii, 536.
Glycerol, nitro-, estimation of, in an exhumed body (POND), A., ii, 361.
Glycerophosphorous acid and its salts (A. and L. LUMIÈRE and PERRIN), A., i, 9.
 and its barium salt (CARRÉ), A., i, 131, 338.
Glyceryl tribenzoate, hydrolysis of (BALBIANO), A., i, 450.
Glycine (*glycocene*; *aminoacetic acid*), formation of, from glyoxylic acid (ERLENMEYER and KUNLIN), A., i, 594.
 derivatives of (FISCHER), A., i, 350.
 estimation of (FISCHER), A., ii, 541.
Glyco-albumose. See Albumose.
Glycocyamine and **Glycocyamidine** in urine in infectious diseases (NICOLA), A., ii, 679.
Glycogen, formation of, in Ascaris (WEINLAND and RITTER), A., ii, 677.
 of the heart (JENSEN), A., ii, 617.
 origin of, from proteid (BENDIX), A., i, 511 ; (CREMER ; SCHÖNDORFF), A., ii, 154.
 from yeast and its relation to oyster and rabbit glycogen (HARDEN and YOUNG), T., 1224 ; P., 1902, 182.
 formation of (SIMON), A., ii, 574.
 effect of prolonged boiling of aqueous solutions of (NÉRKING), A., i, 206.
 during inanition (PFLÜGER), A., ii, 618.
- Glycogen**, estimation of (PFLÜGER), A., ii, 586.
 estimation of, in sausages and meat (MAYRHOFER), A., ii, 180.
Glycol. See Ethylene glycol.
Glycol, $C_{10}H_{14}O_3$, and its diacetate, from the oxidation of anethole by mercuric acetate (BALBIANO, PAOLINI, and NARDACCI), A., i, 808.
 $C_{13}H_{18}O_2$, and its diacetate, from the aldol, $C_{13}H_{16}O_2$ (MICHEL and SPITZAUER), A., i, 292.
Glycols, preparation of, from diketones and organo-magnesium compounds (ZELINSKY), A., i, 593.
 action of dilute acids on (LIEBEN), A., i, 386 ; (KONDAKOFF), A., i, 583.
Glycollanilide, thio-, and its copper derivative (BECKURTS and FRERICHS), A., i, 764.
Glycollic acid, phenylurethane of, and its salts and lactam (LAMBLING), A., i, 537.
Glycolysis in drawn blood (PAVY and SIAU), A., ii, 215.
Glycosuria. See Diabetes.
Glycuronic acid, combined, in normal faeces (BIAL ; BIAL and HUBER), A., ii, 679.
 in dog's blood (LÉPINE and BOULUD), A., ii, 619.
post-mortem occurrence of, in the liver (LÉPINE and BOULUD), A., ii, 218.
 excretion of (MAYER), A., ii, 616.
 excretion of, in phloridzin diabetes (LEWIN), A., ii, 272 ; (MAYER), A., ii, 520.
Glycyglycine, ethyl ester, and its acetyl derivative (FISCHER), A., i, 351.
Glycyglycinecarboxylic acid, and its salts, esters, and amide (FISCHER), A., i, 350.
Glycyglycyl-leucinecarboxylic acid, ethyl ester (FISCHER), A., i, 351.
Glyoxalines, formation of, from 1:8-derivatives of naphthalene (NÖLTING), A., i, 314.
N-Glyoxime -m- and -p-xylyl ethers (BAMBERGER and DESTRAZ), A., i, 539.
Glyoxylic acid, transformation of, in glycine (ERLENMEYER and KUNLIN), A., i, 594.
Gold from Colombia (REISS and STÜBEL), A., ii, 91.
 new association of (COLLINS), A., ii, 460.
 colloidal (PAAL), A., ii, 508.
 intensifying action of, on oxidising agents (SCHAER), A., ii, 140, 603.
 melting point of (BERTHELOT), A., ii, 378.

- Gold**, application of the phase rule to the fusing point of (RICHARDS), A., ii, 455.
 liquid hydrosol of (GUTBIER), A., ii, 610.
 action of selenic acid on (LENHER), A., ii, 402.
 red solution of, as reagent for colloids (ZSIGMONDY), A., ii, 188.
Gold haloids (LENGFELD), A., ii, 27.
 chloride, action of salts on (OECHSNER DE CONINCK), A., ii, 664.
 chlorides (MEYER), A., ii, 86.
 telluride, naturally occurring (LENHER), A., ii, 402.
 silver tellurides in Western Australia (HOLROYD; SIMPSON), A., ii, 509.
 See also Calaverite.
Gold, iodometric estimation of (RUPP and SPIESS), A., ii, 479.
 estimation of, in alloys (RICHARDS), A., ii, 701.
Gold minerals, micrometric assay of (GUERREAU), A., ii, 630.
Gout, acute, metabolism in (VOGT), A., ii, 160.
Granite, Elba, composition of (MANASSE), A., ii, 90.
Granulose, estimation of (KAISER), A., ii, 362.
Grape sugar. See Dextrose.
Graphite, occurrence of monazite in (DERBY), A., ii, 331.
 deposits of Battugol (JACZEWSKI), A., ii, 145.
Green manuring. See Agricultural Chemistry.
Greenockite on calcite from Joplin, Missouri (CORNWALL), A., ii, 567.
Guaiacol, action of ethyl chlorofumarate on the sodium derivative of (RUHEMANN), T., 421; P., 1902, 45.
Guaiacolxyfumaric acid and its ethyl ester (RUHEMANN), T., 421; P., 1902, 45.
Guaiacolsulphonic acid (HÄHLE), A., i, 288.
Guaiacum blue (SCHAER), A., i, 168.
Guanidine, physiological action of (POMMERENIG), A., ii, 274.
 estimation of (VOZÁRIK), A., ii, 633.
Guanidines, aromatic, preparation of (ALWAY and VAIL), A., i, 838.
Guanine, physiological action of (SCHITTENHELM), A., ii, 617.
Guano, Australian bat, minerals occurring in (MACIVOR), A., ii, 460.
Gypsum, solubility of (HULETT and ALLEN), A., ii, 656.
 solubility of, in aqueous solutions of certain electrolytes (CAMERON and SEIDELL), A., ii, 207.
Gypsum, solubility of, in aqueous solutions of sodium chloride (CAMERON), A., ii, 75.
 transformation of, into anhydrite (VAN'T HOFF, DONNAN, ARMSTRONG, HINRICHSEN and WEIGERT), A., ii, 74; (VAN'T HOFF and WEIGERT), A., ii, 137.
 See also Calcium sulphate.

H.

- Hæmatein**, constitution of (BOLLINA, v. KOSTANECKI, and TAMBOR), A., i, 482.
Hæmatomin and **Hæmatommidin** (HESSE), A., i, 681.
Hæmatoxylin (HERZIG and POLLAK), A., i, 482.
 constitution of (PERKIN and YATES), T., 235; (PERKIN), T., 1008, 1057; (GILBODY and PERKIN), T., 1040; P., 1899, 27, 75, 241; 1900, 107; 1901, 257; 1902, 147.
Hæmatoxilinic acid and its salts (PERKIN and YATES), T., 243; P., 1900, 108.
Hæmins (KÜSTER), A., i, 845.
Hæmoglobin, affinity of, for carbon monoxide and oxygen (HÜFNER), A., ii, 671.
 during the period of suckling (ABDERHALDEN), A., ii, 334.
 changes in, under low atmospheric pressure (VALLOT), A., ii, 92.
Hæmoglobins, chemical and physical properties of the (GAMGEE), A., i, 700.
Carboxyhæmoglobin, dissociation of (GRÉHANT), A., ii, 93.
 dissociation of, during life (NICLOUX) A., ii, 215.
Cyanohæmoglobin, crystallised (v. ZEYNEK), A., i, 195.
Hæmolysin of *Bacillus megatherium* (TODD), A., ii, 464.
Hæmolysins, hereditary transmission of (BULLOCH), A., ii, 464.
Hæmolyisis (MATTHES), A., ii, 834.
 and bacteriolysis (BULLOCH), A., ii, 94.
 inhibition of, by salts (MARKL), A., ii, 334.
Hæmopyrrole, oxidation of (KÜSTER), A., i, 845.
Hæmoticcarboxylic acids (*pentane- $\alpha\gamma\delta$ -tricarboxylic acids*) (KÜSTER), A., ii, 845.
Hæmoverdin from the blood of animals and persons poisoned by phenylhydrazine (LEWIN), A., i, 67; ii, 160.
Halloysite from Edwards Co., Texas (MERRILL), A., ii, 462.

- Halochromism** (v. BAAYER and VILLIGER), A., i, 380.
Halochromy of 2:7-dimethoxynaphthalene (KAUFFMANN), A., i, 368.
Halogen compounds, organic, dissolved in alcoholic solution, decomposition of, by sodium amalgam (LÖWENHERZ), A., ii, 385.
 group, velocity of substitution of a, by an alkyloxyl group in aromatic halogen nitro-compounds (LUOFFS), A., i, 87.
 interchange of a, for hydroxyl in bromo- and chloro-naphthalenediazonium hydroxides (ORTON), P., 1902, 252.
 ions, positive and negative (STIEGLITZ), A., ii, 66.
 salts (PEIFFER), A., ii, 498.
 influence of the concentration of the hydrogen ions on the action of iodates on (DITZ and MARGOSCHES), A., ii, 12.
 double salts (WELLS), A., ii, 11.
Halphen's reaction (STEINMANN; RAIKOW), A., ii, 366.
Heart, glycogen of the (JENSEN), A., ii, 617.
Heart muscle, influence of salts on (HOWELL), A., ii, 94.
Heat. See Thermochemistry.
Heat rigor, effect of solutions of various electrolytes and non-conductors on (MOORE), A., ii, 340.
Heating by electricity, apparatus for (GUNTZ), A., ii, 302.
Hedgehog, nitrogenous katabolism in the (NOË), A., ii, 387.
Helium, viscosity of, and its alteration with temperature (SCHULTZE), A., ii, 5.
 use of, in spectroscopy (TSCHERMAK), A., ii, 189.
Hemicelluloses, action of enzymes on (GRÜSS), A., i, 713.
Hemipinic acid (DOBIE and LAUDER), T., 146; P., 1902, 252.
 and its esters, and their conductivity (WEGSCHEIDER), A., i, 617, 619.
 m -**Hemipinic acid** (DOBIE and LAUDER), T., 146; P., 1901, 252; (PERKIN and YATES), T., 242; P., 1899, 27, 241; 1900, 107, 108; (PERKIN), T., 1025, 1062; (GILBODY and PERKIN), T., 1045.
Hemipinic anhydride, dihydroxydimethoxyfluorescein of (LIEBERMANN and WÖBLING), A., i, 547.
Heneicosane (MABERY), A., i, 733.
Hepta-acetyl-bromomaltose (DITMAR), A., i, 532.
Hepta-acetyl-bromomaltose, and -phenyl-maltoside (FISCHER and ARMSTRONG), A., i, 746.
Hepta-acetyl-chlorocellobiose and -methylcellobioside (SKRAUP and KÖNIG), A., i, 135.
Hepta-acetylchlorolactose (BODART), A., i, 347; (DITMAR), A., i, 532.
Hepta-acetylchlorolactoses (two) (FISCHER and ARMSTRONG), A., i, 264.
Hepta-acetyl-chloromaltose, -methyl-maltoside and -ethylmaltoside (FOERC), A., i, 347.
Hepta-acetyl-maltose nitrate and - β -methylmaltoside (KOENIGS and KNORR), A., i, 135.
Heptadecane and dichloro- (MABERY), A., i, 733.
Heptaldehyde (SCHIMMEL & Co.), A., i, 344.
 condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 820.
cycloHeptanecarboxylic acid, synthesis of (ZELINSKY), A., i, 675.
Heptanedicarboxylic acid. See *s-aa*-Diethylglutamic acid.
Heptane- $\alpha\gamma\epsilon\eta$ -hexacarboxylic acid, ethyl ester (GUTHZEIT and ENGELMANN), A., i, 743.
cycloHeptane-1-olacetic acid, ethyl ester (ZELINSKY and GUTT), A., i, 586.
 γ -*iso***Heptanol**, nitro- (MOUSSET), A., i, 254.
Heptoenoic acid (δ -methyl- γ -hexenoic acid), γ -bromo- (WALLACH and BLEMBEL), A., i, 81.
 $\gamma\delta$ -*iso***Heptoenoic acid** (β -methyl- $\beta\epsilon$ -hexenoic acid), and its salts and esters (SOLONINA), A., i, 256.
 n -**Heptoic acid**, ζ -amino- (MANASSE), A., i, 351.
Heptoic acid (δ -methylhexoic acid), $\gamma\gamma\delta$ -tribromo- (WALLACH and BLEMBEL), A., i, 81.
Heptylamine soaps and water, formation of colloidal bubbles from (KRAFFT; KRAFFT and FUNCKE), A., ii, 601.
 iso **Heptylenebenzene** (KLAGES), A., i, 668.
Heptylene glycol (MOUSSET), A., i, 254.
Herbivora. See Agricultural Chemistry.
Hexacarbaminochromic salts (WERNER and KALKMANN), A., i, 687.
Hexacosane (MABERY), A., i, 734.
Hexadecane and dichloro- (MABERY), A., i, 733.
Hexadecenyl-mesitylene and - m -xylene (KLAGES), A., i, 613.
Hexahydroaromatic acids, synthesis of (ZELINSKY), A., i, 675.
Hexahydrobenzoic acid. See *cyclo*-Hexanecarboxylic acid.

- Hexahydrobenzylamines**, preparation of (FARBEWERKE VORM. MEISTER, LUCIUS & BRÜNING), A., i, 90.
- Hexahydrolutidinedicarboxylic acid**, ethyl ester and its nitroso-derivative and platinichloride (KNOEVENAGEL and FUCHS), A., i, 565.
- Hexahydro-*o*-toluic acid**. See 2-Methylcyclohexanecarboxylic acid.
- Hexahydro-*m*-tolylenediamine** and its nitrate, and dibenzoyl and diphenylcarbamide derivatives (HARRIES), A., i, 361.
- Hexahydroxyanthraquinone**. See Rufi-gallic acid.
- Hexahydroxydiphenyl** (HARRIES), A., i, 771.
- Hexahydro-*m*-xylylenediamine** and its salts and diphenylcarbamide (HARRIES), A., i, 361.
- iso***Hexaldehyde** and its oxime (BOUVEAULT and WAHL), A., i, 592.
- Hexamethylacridine** and its additive salts and bromo- and nitro-derivatives (SENIER and GOODWIN), T., 285; P., 1902, 12.
- Hexamethylbenzene**, critical constants of (GUYE and MALLET), A., ii, 303. action of bromine on (v. KORCZYNSKI), A., i, 274.
See also Phenylcyclohexane.
- Hexamethylethylacridiniumiodide** (SENIER and GOODWIN), T., 288; P., 1902, 13.
- Hexamethylindigotin**, 4:5:7:4':5':7' (KUHARA and CHIKASHIGE), A., i, 227.
- Hexane ($\beta\beta$ -dimethylbutane)**, γ -bromo- γ -nitroso-, constitution of (PILOTY and STOCK), A., i, 735.
- iso***Hexane**, α -chloro- β -nitro- (MOUSSET), A., i, 254.
- iso***Hexane** (β -methylpentane), $\beta\gamma$ -di-amino-, and its salts and dicarbamide (KOHN), A., i, 349.
- Hexanes**, nitration of (ZALOZIECKI and FRASCH), A., i, 197.
- cyclo***Hexane**, 1:4-dibromo- and 1:4-dichloro-1:4-dinitro-, -1:4-dinitroso-, and -1:4-bisnitrosyl- (PILOTY and STEINBOCK), A., i, 735.
- cyclo***Hexanecarboxylic acid** (*hexahydrobenzoic acid*), synthesis of (ZELINSKY), ii, 675. and its ethyl ester and *m*-amino-compound and its derivatives (BAUER and EINHORN), A., i, 224.
- Hexanedicarboxylic acids**. See :-
Dimethyladipic acid.
Methylpimelic acid.
 β -*iso*Propylglutaric acid.
- $\beta\epsilon$ **Hexanediol** and its diacetate (DUDEN and LEMME), A., i, 337.
- Hexanetricarboxylic acid**. See $\alpha\alpha$ -Dimethylbutane- $\alpha\beta\delta$ -tricarboxylic acid.
- cyclo***Hexanolones**, formation of (RABE and ELZE), A., i, 709.
- Hexaphenylethane**, and hexanitro- (ULLMANN and BORSUM), A., i, 755.
- β **Hexene**, $\beta\epsilon$ -dibromo- (DUDEN and LEMME), A., i, 337.
- Hexenoic acid** (*dimethylvinylacetic acid*) (PERKIN), T., 256.
- n***Hexoic acid**, *d*- and *l*-amino- (FISCHER and HAGENBACH), A., i, 86.
- $\alpha\epsilon$ -diamino-, synthesis of, and its salts and phenylcarbimide (FISCHER and WEIGERT), A., i, 352.
- Hexoic acid**, dibromo-. See Dimethyl-dibromoethylacetic acid.
- Hexoylacetic acid**, methyl ester (BONGERT), A., i, 73.
- Hexoylacetoacetic acid**, isomeric esters and copper derivative (BONGERT), A., i, 73.
- Hexyl alcohol**, synthesis of (GUERBET), A., i, 180.
- iso***Hexyl alcohol**, amino- and its dibenzoyl derivative, and β -bromo- β -nitro-, and β -nitro- (MOUSSET), A., i, 254.
- β*-*iso***Hexyl alcohol**, α -amino-, and its dibenzoyl derivative (MOUSSET), A., i, 254.
- sec***Hexylacetooacetic acid**, ethyl ester, and its hydrolysis (LEES), T., 1594; P., 1902, 193.
- cyclo***Hexylbenzene**. See Phenylcyclohexane.
- p-cyclo***Hexylbenzenediazonium sulphate** (KURSANOFF), A., i, 20.
- cyclo***Hexylbenzenesulphonic acid** and its salts (KURSANOFF), A., i, 20.
- Hexylbutyrylacetic acid**, ethyl ester (LOCQUIN), A., i, 705.
- iso***Hexylene**, nitro- (BOUVEAULT and WAHL), A., i, 592.
- Hexylene oxide** (ZELINSKY), A., i, 70. dioxide (DUDEN and LEMME), A., i, 338.
- Hexylene glycols**. See Dihydroxyhexane and β -Methylpentane- $\beta\beta$ -diol.
- p-cyclo***Hexylphenol** and its metallic derivatives (KURSANOFF), A., i, 21.
- Hippocampus**, blood of the (SABRAZÈS and MURATET), A., ii, 215.
- Hippurazoimide**, syntheses with (CURTIUS), A., i, 844.
- Hippuric acid**, synthesis of, in the organism (BASHFORD and CRAMER), A., ii, 574. estimation of, by Blumenthal's method (SOETBEER), A., ii, 633.

- Hippuronitrile** (KLAGES), A., i, 355.
Hippurylbenzamide (TITHERLEY), T., 1532; P., 1902, 187.
Histidine, amount of, in vegetable proteins (SCHULZE and WINTERSTEIN), A., i, 193.
Histon salts, electrolysis of (HUISKAMP), A., i, 332.
Hofmann's reaction (GRAEBE and ROTTOZEFF), A., i, 663.
Homoallantoic acid (SIMON), A., i, 15.
Homo-camphanyl- and -camphenyl-anilines (FABERWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 90.
Homocarvomenthene (WALLACH and THÖLKE), A., i, 799.
Homocatechol, nitro-, dimethyl ether (PERKIN), T., 1021; P., 1902, 147; (GILBODY and PERKIN), T., 1052.
Homofurfuraldoxime (BOUVEAULT and WAHL), A., i, 683.
Homomethene (WALLACH and THÖLKE), A., i, 799.
Homonicotinic acid. See 4-Methyl-pyridinecarboxylic acid.
Homoparaconaic acid (TSCHIRCH and KETO), A., i, 167.
Homopilomalic acid. See Piluvic acid.
Homopiperonylaldehyde, oxime of (BOUVEAULT and WAHL), A., i, 683.
Homoveratrole, 6-nitro- (GILBODY and PERKIN), T., 1052; (BOLLINA, V. KOSTANECKI, and TAMBOR), A., i, 482; (V. KOSTANECKI and PAUL), A., i, 686.
Honey, testing of (HILGER), A., ii, 179; (BRÄUTIGAM), A., ii, 362. analyses of (RACINE), A., ii, 704.
Honeys, polarisation of (TOLMAN), A., ii, 537.
Honey dextrin (BECKMANN), A., ii, 180.
Hops. See Agricultural Chemistry.
Horse chestnut trees. See Agricultural Chemistry.
Horse oils, analytical constants of (GILL and ROWE), A., ii, 481.
Horses. See Agricultural Chemistry.
Hübl's iodine solution (KITT), A., ii, 539.
Humic substances (SESTINI), A., i, 136.
Humus. See Agricultural Chemistry.
Hydantoins, labile ψ -thio-, formation of, from thiocyanacetanilides and molecular rearrangement of, into stable isomerides (WHEELER and JOHNSON), A., i, 758.
Hydramides, and their reactions with ethyl cyanoacetate (BECCARI), A., i, 375.
Hydramines, action of aldehydes on (KNORR and MATTHES), A., i, 56.
Hydrates, formation of, in aqueous solutions (SCHMATOLLA), A., ii, 645.
Hydrazides, preparation of, from the hydrazine salts of acids (CURTIUS and FRANZEN), A., i, 832.
Hydrazine, boiling point curve of mixtures of water and (DE BRUYN and DITO), A., ii, 644. density of mixtures of, and water (DITO), A., ii, 499. catalysis of (TANATAR), A., ii, 386, 495.
borates (DJAVACHOFF), A., ii, 317.
hydrate, action of, on thiocarbamides (BUSCH and ULMER), A., i, 575.
salts, use of, in qualitative analysis (KNOEVENAGEL and EBLER), A., ii, 697.
Hydrazobenzene, certain properties of (FREUNDLER and BÉRANGER), A., i, 405. and its substitution derivatives, action of, on aldehydes (RASSOW and RÜLKE), A., i, 404. transformation of, into benzidine (CHATTAWAY), P., 1902, 175; (RASSOW and RÜLKE), A., i, 404; (SACHS and WHITTAKER), A., i, 510.
Hydrazobenzene, *di*-*p*-nitro-, and its tautomeric modification (FREUNDLER and BÉRANGER), A., i, 650.
4,6-dinitro-2-cyano- (BLANKSMA), A., i, 281.
Hydrazoximes, oxidation of (PONZIO), A., i, 190.
Hydrides of the alkaline earths, formation and stability of (GAUTIER), A., ii, 453.
Hydrindamine bromocamphorsulphonates, resolution of (KIPPING), P., 1902, 209, 211.
dl-**Hydrindamine tartrates** (KIPPING and HUNTER), T., 583; P., 1902, 61.
Hydriodic acid. See under Iodine.
Hydro- α -anthrol and its acetate (PLEUS), A., i, 773.
Hydrobenzoin, *4:4'-dichloro-* (MONTAGNE), A., i, 472.
Hydrobromic acid. See under Bromine.
Hydrocarbon, b.p. 169–171°, from isocamphor (SPICA), A., i, 43.
b.p. 170–180°, from the hydrolysis of thujonehydrateglycuronic acid (FROMM and HILDEBRANDT), A., ii, 160.
C₆H₁₂, from the reduction of pinacolin liquid chloride (DELACRE), A., i, 79.
C₇H₁₂, from the action of oxalic acid on 1,3-dimethylcyclopentanol-3 (ZELINSKY and GUTT), A., i, 70.
C₇H₁₂, from ammonium β -methylcyclopentanolacetate (WALLACH and SPERANSKI), A., i, 722.

Hydrocarbon, C_8H_{14} , from 1:3-dimethyl-cyclo-3-hexanol (ZELINSKY and ZELIKOFF), A., i, 3.
 C_8H_{14} , from the iodide of $C_8H_{15}N$ (WALLACH and GILBERT), A., i, 80.
 C_9H_{14} , from sabinene alcohol and sabinene ketone semicarbazone (SEMMLER), A., i, 550.
 C_9H_{14} , from terpineol (WALLACH and RAHN), A., i, 804.
 C_9H_{16} , from 1-methyl-3-ethylicyclo-3-hexanol (ZELINSKY and ZELIKOFF), A., i, 3.
 C_9H_{16} , from the action of oxalic acid on ethyl 1-methylcyclohexane-3-olpropionate (ZELINSKY and GUTT), A., i, 585.
 $C_{10}H_{14}$, from phellandrenol- and pinenol-glycuronic acids (FROMM and HILDEBRANDT), A., ii, 159.
 $C_{10}H_{16}$, from 5-methyl-3-ethyl- Δ^{15} -dihydrophenylacetic acid (WALLACH and BÖTTICHER), A., i, 799.
 $C_{11}H_{18}$, from the acid $C_{12}H_{18}O_2$ (WALLACH and THÖLKE), A., i, 800.
 $C_{11}H_{20}$, from 1:3-dimethyl-4-isopropyl-cyclo-3-hexanol (ZELINSKY and ZELIKOFF), A., i, 3.
 $C_{15}H_{22}$, and its hydrochloride from calamus oil (THOMS and BECKSTROEM), A., i, 810.
 $C_{15}H_{24}$, from galanga oil (SCHINDELMEISER), A., i, 551.
 $C_{18}H_{32}$, obtained in the reduction of β -iodoisopropylbenzene (KLAGES), A., i, 667.
 $C_{18}H_{34}$, from the action of bromine on dimethylpentadecylcarbinol (IPATIEFF and GRAVE), A., i, 5.
Hydrocarbons in Pennsylvania petroleum with boiling points above 216° (MABERY), A., i, 733.
 synthesis of, by means of magnesium organic compounds (GRIGNARD), A., i, 142.
 formed by the action of aluminium chloride on amylene (ASCHAN), A., i, 749.
 respiration of, by plants (POLLACCI), A., ii, 99.
dinitro-, constitution of primary (SCHOLL), A., i, 753.
 reduction of the primary, with aluminium amalgam (PONZIO), A., i, 334.
 acetylenic, study of (MOUREU and DELANGE), A., i, 164, 253.
 direct hydrogenation of, by contact action (SABATIER and SENDERENS), A., i, 701.
 condensation of, with aldehydes (MOUREU and DESMOTS), A., i, 289.

Hydrocarbons, aromatic, recognition of (LIPPMANN and POLLAK), A., ii, 702.
 oxidation of the methyl groups of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 432.
 monobromo- and monoiodo-derivatives of (KALLE & Co.), A., i, 362.
 nitroso-, molecular weight of (BAMBERGER and RISING), A., i, 88.
 benzoid, oxidation of, by manganese dioxide and sulphuric acid (FOURNIER), A., i, 15.
 coal tar, separation of cyclic aromatic oxides or sulphides from (AKTIEN-GESELLSCHAFT FÜR THEER- & ERDÖL-INDUSTRIE), A., i, 714.
 cyclic, active saturated (ZELINSKY), A., i, 665.
 heat of combustion of (ZUBOFF), A., i, 144.
 specific heats and heats of vaporisation of (MABERY and GOLDSTEIN), A., ii, 548.
 mono- and di-cyclic, and their derivatives, synthesis of (PERKIN), A., i, 597.
 polycyclic, synthesis of (DELACRE), A., i, 783.
 ethylenic, hydrogenation of (SABATIER and SENDERENS), A., i, 525.
 paraffin, specific heats and heats of vaporisation of (MABERY and GOLDSTEIN), A., ii, 548.
 saturated, action of nitrosulphuric acid on (MARKOWNIKOFF), A., i, 417.
 unsaturated, formation of, from alcohols (ZELINSKY and ZELIKOFF), A., i, 2.
 See also Olefines, Paraffins, Sesquiterpenes, and Terpenes.
Hydrocarbons. See also :—
 Acetylene.
B-Allylbenzene.
 Allylmesitylene.
 Amenylbenzene.
 Amylbenzenes.
 Amylene.
 Anthracene.
 Aromadendrene.
 Benzene.
 Benzyl-5-fluorene.
 Butane.
*iso*Butane.
 Butenylmesitylene.
p-Butenyl-*m*-xylene.
 Butylbenzenes.
*iso*Butylene.
 Cadinene.
 Calanene.
 Camphane.

Hydrocarbons. See :—

Camphene.
Carvene.
Cetylbenzene.
Cetylmesitylene.
 β - ψ -Cumyl- β -butylene.
Cymene.
5:10-Dibenzylanthracene.
Dibenzylmesitylene.
Diisobutyl (*octane*).
Didehydrocampholene.
Dicyclohexyl.
 $\Delta^{1:5}$ -Dihydromesitylene.
Dihydrophenanthrene.
 $\Delta^{1:3}$ -Dihydrotoluene.
Dihydro-*m*-xylene.
 $\beta\beta$ -Dimethylbutane.
Dimethylidicyclohexyl.
1:1-Dimethyl- $\Delta^{2:4}$ -dihydrobenzene.
1:3-Dimethyl-5-ethylbenzene.
1:5-Dimethyl-2-ethyl- Δ^1 -tetrahydrobenzene.
1:1-Dimethylhexamethylene.
1:3-Dimethylcyclohexane.
Dimethyl- $\gamma\delta$ -hexane (*octane*).
Dimethylindenenes.
Dimethylnaphthalene.
3:4-Dimethylcycloocta- $\Delta^{1:5}$ -diene.
1:3-Dimethylcyclopentane.
Dimethylisopropylbenzene.
Dimyrcene.
Dipentene.
Diphenyl.
Diphenylethylenes.
 s -Diphenylethylene.
Diphenylcyclohexanes.
Diphenylmethane.
3:4-Diphenylcycloocta- $\Delta^{1:5}$ -diene.
Diphenylpropanes.
Diphenylpropylenes.
Ditolyl.
Docosane.
*cyclo*Dodecatriene.
Durene.
Ethane.
Ethylbenzene.
Ethylene.
Ethylfluorene.
 p -Ethylstyrene.
Fenchene.
Fluorene.
*cyclo*Geraniolene.
Heneicosane.
Heptadecane.
*iso*Heptylbenzene.
Hexacosane.
Hexadecane.
Hexadecylmesitylene.
Hexadecenyl-*m*-xylene.
Hexamethylbenzene.
*cyclo*Hexane.
Hexanes.

Hydrocarbons. See :—

Hexaphenylethane.
 β -Hexene.
*cyclo*Hexylbenzene (*phenylcyclohexane*).
*iso*Hexylene.
Homocarvomenthene.
Homomenthene.
Indene.
Laurolene.
*iso*Laurolene.
Limonenes.
Menthenes.
Mesitylene.
Methane.
Methenylbisfluorene.
Methoethenylbenzene (β -allylbenzene).
p-Methylallylbenzene.
1-Methyl-3-*tert*.butylbenzene.
 β -Methyl- β -butylene (*amylene*).
1-Methyl-3-ethylcyclohexene.
1-Methyl-3-ethylcyclopentane.
Methylfenchene.
Methylfluorene.
 δ -Methyl- γ -heptylene (*octylene*).
1-Methylcyclohexane.
1-Methylcyclohexene.
Methylindenenes.
 γ -Methyl-2-methylenecyclopentane.
Methylcyclopentane.
 β -Methylpentane (*isohexane*).
1-Methylcyclo- Δ^2 -pentene.
1-Methylpropyl-2-ethylethylene (*octylene*).
p-Methylstyrene.
Methyltrimethylene.
Myrcene.
Naphthalene.
Naphthenes.
Nonadecane.
Nonylenes.
Octacosane.
Octadecane.
*cyclo*Octa- $\Delta^{1:5}$ -diene.
Octanes.
Octinene.
Octylene.
Pentacosane.
Pentadecane.
Pentamethylbenzene.
Pentane.
*iso*Pentane.
Pentinene.
Phellandrene.
Phenauthrene.
Phenylacetylene.
 β -Phenyl- β -amylene.
Phenylbutadienes.
 α -Phenyl- β -butylene.
 β -Phenyl- β -butylene.
Phenylidihydropinene.
 β -Phenyl- β -*iso*heptylene.

Hydrocarbons. See :—

Phenylcyclohexane.
 α -Phenyl- γ -methyl- $\alpha\gamma$ -butadiene.
 α -Phenyl- γ -methyl- $\alpha\gamma$ -pentadiene.
 Pincnes.
 Piperylene (*pentinene*).
 Polymyrcene.
*cyclo*Propane.
*iso*Propylbenzene.
 Propylene.
 Pulenene.
 Pyrodypnopinalcolene.
 Salvene.
 Stilbene.
 Styrenes.
 Terpane.
 Terpenes.
 Terpinene.
 Tetracosane.
 Tetradecane.
 $\alpha\beta$ -Tetrahydro- β -naphthalene.
 Tetrahydrotoluene.
 Toluene.
 Tricosane.
 Tridecane.
 Triethylbenzenes.
 Trimethyldicyclododecatriene.
 Trimethylene (*cyclopropane*).
 Trimethylethylene (*amylene*).
 Triphenylmethane.
 Triphenylmethyl.
 Tropilidene.
 $\beta\gamma$ -Undecinene.
 Undecylene.
 Xylenes.
 Zingiberene.

Hydrocarbostyryl-4-acetic acid. See
 Dihydrocarbostyryl-4-acetic acid.
iso**Hydrochelidonic acid.** See Pilomalic
 acid.

Hydrochloric acid. See under Chlorine.
Hydrocinnamic acid. See β -Phenyl-

propionic acid.

Hydrocinnamyl-methyl- and -ethyl-
 amines and their salts (ANDREE), A.,
 i, 210.

Hydrocotarninecarboxylamide methiodide
 (FREUND and BAMBERG), A.,
 i, 556.

Hydrocotarninethiocarbonamide metho-
 hydroxide and methiodide (FREUND
 and BAMBERG), A., i, 557.

Hydrocoumarone and its halogen derivatives
 and sulphuric chloride and amide (BOES), A., i, 784.

Hydrocyanic acid. See under Cyanogen.

Hydrofluoric acid. See under Fluorine.

Hydrogen in the atmosphere (RAYLEIGH),

A., ii, 391.

preparation of pure (MELLOR and
 RUSSELL), T., 1279; P., 1902,
 7.

Hydrogen, place of, in the periodic system (BRAUNER), A., ii, 66.

stratifications of (CROOKES), A., ii, 374.

discharge potential of, at a mercury cathode (COEHN and NEUMANN), A., ii, 118.

determinations of inversion temperature of Kelvin effect for (OLSZEWSKI), A., ii, 444.

carbon monoxide and *isopentane*, fractional combustion of (CHARIT-SCHKOFF), A., ii, 702.

compressibility of, at low pressures (BATTELLI), A., ii, 244.

diffusion of, through platinum (WINKELMANN), A., ii, 552.

behaviour of, with chlorine (MELLOR and RUSSELL), T., 1279; P., 1902, 167.

union of, with chlorine (MELLOR and ANDERSON), T., 414; P., 1902, 32; (MELLOR), T., 1280, 1292; P., 1902, 169, 176.

under the influence of light (MELLOR and ANDERSON), T., 414; P., 1902, 32; (BEVAN), A., ii, 237.

union of, with oxygen (BAKER), T., 400; P., 1902, 40.

and oxygen, behaviour of, in presence of water (MARCACCI), A., ii, 392.

action of, on selenides and sulphides (PÉLALON), A., ii, 253.

relations of, to unsaturated elements and groups of elements (FEIST), A., i, 490; (VORLÄNDER), A., i, 562.

effect of the presence of, on the spectrum of carbon (HERBERT), A., ii, 637.

respiration of, by plants (POLLACCI), A., ii, 99.

Hydrogen antimonide. See Antimony hydride.

arsenide. See Arsenic trihydride.

bromide. See under Bromine.

chloride. See under Chlorine.

cyanide. See under Cyanogen.

fluoride. See under Fluorine.

iodide. See under Iodine.

nitride. See Azomide.

Hydrogen peroxide, crystallised (STAEDEL), A., ii, 604.

pure solution of (JONES, BARNES, and HYDE), A., ii, 203.

aqueous, lowering of the freezing point of (JONES, BARNES, and HYDE), A., ii, 203.

intensifying action of, on oxidising agents (SCHAER), A., ii, 140, 603.

decomposition of (KASTLE and CLARKE), A., ii, 314.

decomposition of, by light (D'ARCY), A., ii, 297.

- Hydrogen peroxide**, catalytic decomposition of, by colloidal mercury and silver (MCINTOSH), A., ii, 310.
 behaviour of, with salts (MELIKOFF), A., ii, 314; (PETRENKO), A., ii, 316, 317; (KASANEZKY), A., ii, 317; (PISSARJEWSKY), A., ii, 326.
 action of, on carbohydrates in presence of ferrous sulphate (MORRELL and CROFTS), T., 666; P., 1902, 55.
 action of, on carbonates (KASANEZKY), A., ii, 317, 500.
 action of, on cerium, thorium, and zirconium hydroxides (PISSARJEWSKY), A., ii, 565.
 action of chromic acid on (BACH), A., ii, 251.
 mechanism of the action of, on permanganic acid (BACH), A., ii, 81.
 action of, on potassium fluoroborate (PETRENKO), A., ii, 317.
 action of, on potassium fluoropermolybdate (KASANEZKY), A., ii, 506.
 action of, on silver oxide (BERTHELOT), A., ii, 18, 207.
 action of, on sodium arsenate (PETRENKO), A., ii, 499.
 reactions of, with sulphites and thiosulphates (NABL), A., ii, 10.
 action of, on zinc oxide (DE FORCRAND), A., ii, 322.
 potassium percarbonate as a substitute for (TREADWELL), A., ii, 206.
 alkali salts of, in aqueous solution (CALVERT), A., ii, 10.
 molecular compounds of, with salts (TANATAR), A., ii, 11.
 is it a function in cell-life? (CHODAT and BACH), A., ii, 344; (BACH and CHODAT; LOEW), A., ii, 522.
 detection of (ALOY), A., ii, 610.
 commercial, detection of oxalic acid in (NICOLLE), A., ii, 56.
 detection and estimation of oxalic acid in (ROCHE), A., ii, 181.
 estimation of, gravimetrically (HOSCH), A., ii, 222, 472.
Hydrogen peroxides, higher, existence of (BACH), A., ii, 203.
Hydrogen phosphide (phosphine), preparation of gaseous (BODROUX), A., ii, 499.
Hydrogen selenide, physical properties of (DE FORCRAND and FONZES-DIACON), A., ii, 253.
 and hydrogen sulphide, comparison of the properties of (DE FORCRAND and FONZES-DIACON), A., ii, 254.
 sulphide, and telluride, physical properties and physiological action of (DE FORCRAND and FONZES-DIACON), A., ii, 557.
- Hydrogen selenide**, vapour tension of, and the dissociation of its hydrate (DE FORCRAND and FONZES-DIACON), A., ii, 253.
Hydrogen silicide, liquid (MOISSAN and SMILES), A., ii, 318, 560.
Hydrogen sulphide, formation of, in alcoholic fermentation (SEIFERT), A., ii, 98; (POZZI-ESCOR), A., ii, 577.
 physical properties and physiological action of (DE FORCRAND and FONZES-DIACON), A., ii, 557.
 and hydrogen selenide, comparison of the properties of (DE FORCRAND and FONZES-DIACON), A., ii, 254.
 dissociating power of (SKILLING), A., ii, 13.
 behaviour of hydrochloric acid solutions of metastannic acid towards (JØRGENSEN), A., ii, 26.
 compounds of, with anhydrous aluminium chloride (BAUD), A., ii, 505.
 generator for (SWAN), A., ii, 449.
 apparatus (WÖHLK), A., ii, 204.
 blue litmus-silk as a test for (EMICH), A., ii, 352.
 detection and estimation of small quantities of, in coal-gas (DIBDKIN and GRIMWOOD), A., ii, 582.
 estimation of small amounts of, in natural waters (WINKLER), A., ii, 223.
Hydrogen telluride, physical properties and physiological action of (DE FORCRAND and FONZES-DIACON), A., ii, 498, 557.
Hydrogen ions, new method of determining the concentration of (JONES and RICHARDSON), T., 1140; P., 1902, 140.
 of dilute acids, antiseptic function of the (BIAL), A., ii, 447.
Hydrogen sulphide group, new separation in the (KNOEVENAGEL and EBLER), A., ii, 697.
Hydrogenases (Pozzi-Escor), A., i, 580.
 of the blood (Pozzi-Escor), A., i, 634.
 catalytic properties of the (Pozzi-Escor), A., i, 513.
Hydrogöthite (SAMOILOFF), A., ii, 88.
Hydrolysis. See Affinity.
Hydroquinizarol triacetate (PLEUS), A., i, 773.
Hydroxamic acids, formation of, from nitroparaffins (BAMBERGER and RÜST), A., i, 197.
Hydroxamino-oximinomalonic acid. See Malondihydroxamic acid.
p-Hydroxyacetophenone and its oxime and semicarbazone (CHARON and ZAMANOS), A., i, 104.

- Hydroxy-acid**, $C_{15}H_{20}O_4$, from the action of alkalis and alkaline earths on $C_{15}H_{18}O_8$ (BERTOLO), A., i, 815.
- Hydroxy-acids**, compounds of, with antimony pentachloride and tungsten chlorides (ROSENHEIM and LOEWENSTAMM), A., i, 358.
- methylene compounds of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 76.
- Hydroxyaldehydes**, aromatic, synthesis of (DIMROTH and ZOEPPRITZ), A., i, 293.
- m*-**Hydroxy-o-isoamylbenzoic acid** and its ethyl ester (BAUER and EINHORN), A., i, 225.
- 5-Hydroxy-2-anilinonaphthalene-7-sulphonic acid** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 92.
- Hydroxyanthraquinones**, preparation of, from the corresponding nitro-derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 383.
- Hydroxyanthraquinones**, amino- and bromo-derivatives of (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 382.
- 4-Hydroxyanthraquinone-2-sulphonic acid**, 1-amino-, and its salts (WACKER), A., i, 298.
- 1-Hydroxyanthraquinone-2-sulphonic acid**, 4-nitro-, introduction of amino-radicles into (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 476.
- p*-**Hydroxyazobenzene**, action of chloroacetic acid (MAI and SCHWABACHER), A., i, 126.
- Hydroxyazonaphthalene-5:5'-disulphonic acid** and its ammonium salts (WACKER), A., i, 506.
- o*-**Hydroxyazoxybenzene** and its isomeride (BAMBERGER), A., i, 505.
- p*-**Hydroxyazoxybenzene**, synthesis of (BAMBERGER), A., i, 506.
- m*-**Hydroxybenzaldehyde**, tetrachloro-, and its acetyl derivative (BILTZ and KAMMANN), A., i, 162.
- p*-**Hydroxybenzaldehydeaniline** and its salts (DIMROTH and ZOEPPRITZ), A., i, 293.
- 3-Hydroxybenzaldehydephenylhydr-azone**, tetrachloro-, and its acetyl derivative (BILTZ and KAMMANN), A., i, 162.
- and its 2:4:6-tribromo-, and 2:4:6-tri- and tetra-chloro-derivatives, atmospheric oxidation of (BILTZ and KAMMANN), A., i, 467.
- p*-**Hydroxybenzaldehydephenylhydr-azone** and its haloids and 3-nitro-derivative, oxidation of (BILTZ and AMME), A., i, 468.
- m*-**Hydroxy-benzaldoxime**, -benzamide, and -benzonitrile, tetrachloro-, and the acetyl derivative of the nitrile (BILTZ and KAMMANN), A., i, 162.
- 4-Hydroxy-5-benzeneazo-2:6-diphenyl-pyrimidine** (BÜLOW and HAIDER), A., i, 326.
- 2-Hydroxy-1-benzeneazo-3-naphthoic acid** (STROHBACH), A., i, 162.
- "**3-Hydroxybenzeneazoxindone**" and its acetate, and compound with 3-aminobenzeneazoxindone (DIEPOLDER), A., i, 830.
- o*-**Hydroxybenzoic acid**. See Salicylic acid.
- 3-Hydroxybenzoic acid**, 4:6-dibromo- and 2-bromo-4:6-dinitro- (ROBERTSON), T., 1484; P., 1902, 190.
- 2:6-dichloro- and 2:6- and 6:2-chloro-bromo- and their ethyl esters (MARTINI), A., i, 150.
- 4-Hydroxybenzoic acid**, 3-mono- and 3:5-di-bromo-, acetyl derivatives, and ethyl ester of the dibromo-compound (ROBERTSON), T., 1482; P., 1902, 190.
- Hydroxybenzoic acids**, halogenated, relation of their affinities to their constitution (COPPADORO), A., i, 783.
- amino-, methyl esters, compounds of, with 1-phenyl-2:3-dimethyl-5-pyrazolone (EINHORN), A., i, 497.
- Hydroxybenzophenone**, derivatives of (ULLMANN and GOLDBERG), A., i, 792.
- p*-**Hydroxybenzyl alcohol**, tri- and tetrabromo-, and methyl ethers, and their acetyl derivatives (ZINCKE and WIEDERHOLD), A., i, 284.
- tetrachloro- and its acetyl derivatives, methyl ether, and nitro-ketones (ZINCKE and WIEDERHOLD), A., i, 283.
- p*-**Hydroxybenzyl bromide**, tri- and tetrabromo- (ZINCKE and WIEDERHOLD), A., i, 284.
- tetrachloro- (ZINCKE and WIEDERHOLD), A., i, 282.
- Hydroxybenzyl thiocyanates**, bromo-derivatives, and their acetyl compounds (STEPHANI), A., i, 148.
- 7-Hydroxy-2-benzylchromone**, and its acetate (HANNACH and v. KOSTANECKI), A., i, 304.
- m-Hydroxybenzylidene chloride** and its acetyl derivative, tetrachloro- (BILTZ and KAMMANN), A., i, 163.
- o*-**Hydroxybenzylideneacetooacetic acid** (WIDMAN), A., i, 374.
- a*-**Hydroxybenzylideneacetophenone** and its methyl and ethyl ethers (POND YORK, and MOORE), A., i, 105.

- Hydroxybenzylidene-2-bromoindanones**, and their acetyl derivatives (MINIAT), A., i, 296.
- o-Hydroxybenzylidene-hydrazine** and **-phenylsemithiocarbazide** (CURTIUS and FRANZEN), A., i, 831.
- 1-a-Hydroxybenzyl-4-methylcyclohexanol-2**, and its diacetate (TÉTRY), A., i, 470.
- 4-a-Hydroxybutyl-1:3-dimethylbenzene**, and its chloride (KLAGES), A., i, 612.
- 2-a-Hydroxybutyl-1:3:5-trimethylbenzene** and its acetate and phenylurethane (KLAGES), A., i, 613.
- β -Hydroxybutyralacetal** (WOHL and FRANK), A., i, 532.
- a-Hydroxybutyric acid**, and its ethyl ester, phenylurethanes of, and the lactam of the acid (LAMBLING), A., i, 603.
- β -Hydroxybutyric acid**, resolution of, into its optically active components (MCKENZIE), T., 1402; P., 1901, 213; 1902, 185.
- β -Hydroxybutyrolactone** (FICHTER and SONNEBORN), A., i, 256.
- 1-Hydroxycamphene** and its conversion into the β -halogen derivatives of camphor, and its methyl and ethyl ethers (FORSTER), T., 264; P., 1902, 25.
- β -Hydroxycamphoronic acid**. See β -Camphoronic acid.
- iso***Hydroxycarbamide** and its hydrochloride and diacetyl derivative (FRANCESCONI and PARROZZANI), A., i, 139.
- 4-Hydroxyisocarboxylic acid** and its phthaloylic acid, phthalide, and benzylidene derivative (GABRIEL and COLMAN), A., i, 642.
- Hydroxycarboxylic acids**, aromatic, formation of, in indifferent solvents, by Kolbe's reaction, and its relation to the cryoscopic behaviour of phenols in benzene and in other hydroxyl-free solvents (ODDO and MAMELI), A., i, 33.
- 6-Hydroxychromone** and its acetate (DAVID and V. KOSTANECKI), A., i, 690.
- Hydroxycinchotine** and its salts (SCHMID), A., i, 53; (WIDMAR), A., i, 173.
- p-Hydroxycinnamic acid**, action of bromine on, and its methyl ester (ZINCKE and LEISSE), A., i, 615.
- Hydroxycoumaric acid** (TICKLE and COLLIE), T., 1006; P., 1902, 170.
- o-Hydroxy- ψ -cumyl alcohol**, *dibromo*-, *methyl ether* and *acetate* (ANSELMINO), A., i, 286.
- o-Hydroxy- ψ -cumyl bromide** and *iodide*, *dibromo*- (ANSELMINO), A., i, 286.
- p-Hydroxy- ψ -cumyl alcohol**, *dibromo*-, *formate* and *amyl ether* of (STEPHANI), A., i, 148.
- Hydroxy- ψ -cumyl**. See also ψ -Cumenol.
- Hydroxy- ψ -cumyl bromide**, *dibromo*- (AUWERS and ANSELMINO), A., i, 214.
- chloride** and *iodide*, *dibromo*-, and their *acetyl derivatives* (ANSELMINO), A., i, 216.
- p-Hydroxycumylacetic acid**, *dibromo*- (STEPHANI), A., i, 148.
- Hydroxy- ψ -cumarilines**, *o*-, *m*-, and *p*-, and the *dibromo-derivative* and its *acetyl compounds* of the *m*-compound, and the *acetyl derivatives* of the *o*-compound (AUWERS and ANSELMINO), A., i, 214.
- Hydroxy- ψ -cumylene dibromide**, *dibromo*- (AUWERS and ANSELMINO), A., i, 215.
- m-glycol*, *dibromo*-, *bromide* of (ANSELMINO), A., i, 216.
- tribromo*-, *dimethyl ether*. See *2:4-Dimethoxydimethyl-5-bromo-methyl-1-phenol*, *3:6-dibromo*.
- p-Hydroxy- ψ -cumylmalonic acid**, *dibromo*-, and its *ethyl ester* (STEPHANI), A., i, 148.
- Hydroxy- ψ -cumylpyridine hydrobromide**, *dibromo*- (ANSELMINO), A., i, 215.
- Hydroxydehydroscaphotosantonic acid** and its barium salt and *acetyl derivative* (FRANCESCONI and VENDETTI), A., i, 546.
- Hydroxydibenzylanthracene**, and its *ethyl ether* (LIPPmann and POLLAK), A., i, 754.
- β -Hydroxy- $\alpha\alpha$ -diethylglutaric acid** and its *s-ethyl ester* and *barium salt* (REFORMATSKY), A., i, 588.
- 4-Hydroxydiethyl-o-toluidine** and its *hydrochloride* and *benzoate* (MÖHLAU, KLIMMER, and KAHL), A., i, 839.
- Hydroxydihydrocycloamine bases**, history and theory of (DECKER), A., i, 691.
- α -Hydroxydihydroisoeugenol**, β -*mono*- and β -*m-di-bromo*-, and their *ethers* and *acyl derivatives* (AUWERS and MÜLLER), A., i, 212.
- 4-Hydroxydihydrofencholenic acid** and its *amide*, *lactone*, and *nitrile* (MAHLA), A., i, 107.
- Hydroxydihydrotetramethylhaematoxylone**, *nitro*-, and its *reactions* (PERKIN), T., 1063.
- Hydroxydihydrotrimethylbrazilone**, *nitro*-, and its *acetate* (PERKIN), T., 1020; P., 1902, 147; (GILBODY and PERKIN), T., 1048; (BOLLINA, v. KOSTANECKI, and TAMBOR), A., i, 482.

- α -Hydroxy- α -dimethylacetonylacetone** and its dioxime and disemicarbazone (HARRIES), A., i, 345.
- Hydroxydimethylaminoacetyl dimethylamide** (WILLSTÄTTER), A., i, 350.
- 7-Hydroxy-2-p-dimethylanilinonaphthalene** (GNEHM, BOTS, and WEBER), A., i, 831.
- α_1 -Hydroxy- α -dimethylglutaric acid**, lactone of, and its silver salt (PERKIN), T., 259.
- β -Hydroxy- α -dimethylglutaric acid**, synthesis of (PERKIN and SMITH), P., 1902, 214.
- 5-Hydroxydimethyl- α -naphthylamine** and 6-nitroso- (FUSSGANGER), A., i, 279.
- γ -Hydroxy- $\beta\beta$ -dimethylpropionaldazine** (KÖNIG), A., i, 701.
- 4-Hydroxy-3:5-dimethylpyrazole** (SACHS and RÖHMER), A., i, 837.
- 6-Hydroxy-2:4-dimethylpyridine.** See ψ -Lutidostyril.
- 6-Hydroxy-2:5-dimethylpyridine** and its 6-bromo-derivative and -3-carboxylic acid and its ethyl ester (ERRERA), A., i, 117.
- Hydroxydimethylpyrone** and its acetate (TICKLE and COLLIE), T., 1005; P., 1902, 170.
- 4-Hydroxydimethyl-*o*-toluidine** and its hydrochloride, acetate, benzoate, and 5-nitroso- and its salts (MÖHLAU, KLIMMER, and KAHL), A., i, 838.
- Hydroxydiphenylamine, dinitro-*m*-thiocyanato-derivatives** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 93.
- Hydroxydiphenylaminesulphonic acids, dinitro-*m*-thiocyanato-** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 93.
- 3-Hydroxy-1:3-diphenyl-1:2:4-triazole** (WHEELER and BEARDSLEY), A., i, 502.
- 1-Hydroxyerythroanthraquinone, 2:4-dibromo-** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 477.
- 2-Hydroxy-5-ethoxybenzoylpyruvic acid, ethyl ester** (DAVID and v. KOSTANECKI), A., i, 690.
- α -Hydroxy-4-(or 5)-ethoxydibenzyl-2-carboxylic acid** (ONNERTZ), A., i, 99.
- m*-Hydroxy-*o*-ethylbenzoic acid**, and its esters and acetyl and benzoyl derivatives (BAUER and EINHORN), A., i, 225.
- Hydroxyethylidemethylacetio acid**, lactone of. See $\alpha\alpha$ -Dimethylbutyrolactone.
- 4- α -Hydroxyethyl-1-mono- and -1:3-dimethylbenzenes, and their phenylurethanes and chlorides** (KLAGES), A., i, 611.
- 4- α -Hydroxyethyl-1-ethylbenzene** and its phenylurethane and chloride (KLAGES), A., i, 612.
- Hydroxyethylnitrocaramide** (FRANCHIMENT and LUBLIN), A., i, 427.
- α -Hydroxy-*p*-ethylphenol**, bromo-derivatives of, and their acetyl compounds (ZINCKE, SIEBERT, and REINBACH), A., i, 607.
- bromo-derivatives of, and their diacetates and α -methyl and -ethyl ethers (ZINCKE and LEISSE), A., i, 615.
- Hydroxyethyl-*p*-tolylpyridine.** See *p*-Tolyl-2-picolyllalkine.
- Hydroxyflavonole derivatives**, synthesis of (v. KOSTANECKI and TAMBOR), A., i, 470.
- Hydroxyglutaric acid**, formation of, from casein (HABERMANN and EHRENFELD), A., i, 653.
- α -Hydroxyglutaric acid** (PAOLINI), A., i, 658.
- 4- α -Hydroxyhexadecyl-1:3-dimethylbenzene** (KLAGES), A., i, 613.
- 2- α -Hydroxyhexadecyl-1:3:5-trimethylbenzene** and its chloride (KLAGES), A., i, 613.
- m*-Hydroxyhexahydrobenzoic acid (*m*-hydroxycyclohexanecarboxylic acid)** (BAUER and EINHORN), A., i, 225.
- p*-Hydroxyhexahydrotoluic acid (*p*-hydroxymethylcyclohexanecarboxylic acid)**, and its phenylurethane and lactone (STEPHAN and HELLE), A., i, 632.
- Hydroxyhydroanthranol** and its mono- and di-acetate (PLEUS), A., i, 773.
- Hydroxyhydouracil** (FISCHER and ROEDER), A., i, 124.
- 2-Hydroxyindazole** and its silver salt and nitroso-derivative (BAMBERGER and DEMUTH), A., i, 651.
- γ -Hydroxy- α -ketobutane- $\alpha\gamma$ -dicarboxylic acid**, the phenylhydrazone of the $\alpha\gamma$ -lactone of, action of hydrochloric acid on (DE JONG), A., i, 122.
- 6-Hydroxy-2-keto- $\Delta^{3:5}$ -dihydropyridinetricarboxylic acid, ethylester** (ERRERA and PERCIABOSCO), A., i, 116.
- 3-Hydroxy-5-keto-1-phenyl-2:5-dihydrotriazole** and its salts and acetyl derivative (ACREE), A., i, 242.
- 3-Hydroxy-5-keto-1-phenyl-2- and -4-methyl-4:5-dihydrotriazoles** and their salts (ACREE), A., i, 242.
- Hydroxyl**, interchange of halogen for, in bromo- and chloro-naphthalenediazonium hydroxides (ORTON), P., 1902, 252.
- Hydroxyl ions**, presence of, in potassium sulphate solutions (ARNDT), A., i, 62.

- Hydroxylamine**, electrolytic formation of (TAFEL), A., ii, 559.
 catalysis of (TANATAR), A., ii, 387.
 action of, on ethyl dimethylpyrondicarboxylate (PALAZZO), A., i, 816.
 use of, in qualitative analysis (KNOEVENAGEL and EBLER), A., ii, 697.
 additive salts and compounds of, with cadmium and mercury salts (ADAMS), A., ii, 655.
 sulphate, interaction of, with Caro's acid (ANGELI and ANGELICO), A., ii, 254.
 new colour reaction of (BALL), P., 1902, 9.
- 1-Hydroxylaminoanthraquinone-2-sulphonic acid** (WACKER), A., i, 298.
- o-Hydroxylaminobenzaldoxime** and its benzylidene derivative (BUHLMANN and EINHORN; BAMBERGER and DEMUTH), A., i, 95.
- 2-Hydroxy-4:6-lutidine-3-carboxylic acid** and its ethyl ester and amide (KNOEVENAGEL and CREMER), A., i, 640.
- o-Hydroxymandelic acid** (FISCHER and SLIMMER), A., i, 621.
- o-Hydroxymercurisalicylic acid**, anhydride of (DIMROTH), A., i, 851.
- Hydroxymesitylene**, diamino-(WENZEL), A., i, 190.
- 6-Hydroxy-4-methoxybenzoylpropionic acid** (PERKIN), T., 231; P., 1901, 258.
- 2-Hydroxy-4-mono- and -4:6-di-methoxybenzoypyravic acids**, ethyl esters (v. KOSTANECKI and DE RUIJTER DE WILDT), A., i, 303.
- 5-Hydroxy-7-methoxychromone**, and its acetate (v. KOSTANECKI and DE RUIJTER DE WILDT), A., i, 303.
- a-Hydroxy-β-methoxydihydroisoeugenol**, bromo- (AUWERS and MÜLLER), A., i, 213.
- 3-Hydroxy-5-methoxy-2-methylquinone** (POLLAK and SOLOMONICA), A., i, 149.
- p-Hydroxy-m-methoxyphenylmethane-bis-2:5-dimethylpyrrole-3-carboxylic acid**, ethyl ester (FEIST, WIDMER, and SAKOWITSCH), A., i, 490.
- 7-Hydroxy-6-methoxyquinaldine** and its salts (BOOK), A., i, 465.
- 3-Hydroxymethyl-2-aminobenzylidene-p-nitroaniline**, 5-nitro-, and its acetyl derivative (MEYER and STILLICH), A., i, 320.
- 2-Hydroxy-5-methylazobenzene, 4'-nitro-** (MEHNER), A., i, 577.
- iso-Hydroxymethylchrysasin** and its tetrabromo- and tetrachloro-derivatives and the triacetate of the chloro-compound (LÉGER), A., i, 549, 685.
- 2-Hydroxy-6-methyl-1:3-diethylidihydrobenziminoazole** (FISCHER, RIGAUD, and BECKER), A., i, 400.
- β-Hydroxymethylerythrose**. See Apiose.
- β-Hydroxy-β-methyl-α-ethylbutyric acid** (GRIGNARD), A., i, 421. *
- p-Hydroxy-p-methylhexahydroacetophenone** and its semicarbazone (STEPHAN and HELLE), A., i, 632.
- 4-Hydroxy-6-methylquinazoline** (EHRlich), A., i, 26.
- 2-Hydroxy-4-methylquinoline**, and its 3-acyl and 3-cyano-derivatives and 3-carboxylic acid and ethyl ester (CAMPs), A., i, 396.
- o-Hydroxymethylsalicylaldehyde** and its 3-bromo-, and oxime, and their acetyl derivatives, and the oxime of the acetyl compound (AUWERS and HUBER), A., i, 213.
- Hydroxymethylsalicylic acid** and its methyl ester and amide (AUWERS and HUBER), A., i, 214.
- Hydroxymethylsalicylonitrile** and its diacetyl derivative (AUWERS and HUBER), A., i, 213.
- 6-Hydroxymethyl-2:3:4-trimethylquinolinic acid** (WOLFF, GÄBLER, and HEYL), A., i, 676.
- 5-Hydroxy-4-methyluracil** and its acetate (BEHREND and GRÜNEWALD), A., i, 834.
- o-Hydroxynaphthoic acids**, action of alkali hydroxides and of sulphites on (BUCHERER), A., i, 718.
- 2-Hydroxy-3-naphthoic acid**, esters (STROHBACH), A., i, 171.
- Hydroxynaphthoic chlorides**, 1:2-, 2:1-, and 3:2- (MEYER), A., i, 31.
- 2-Hydroxy-3-naphtho-β-naphthalide** (STROHBACH), A., i, 183.
- 1-Hydroxy-2-naphthoypyrvic acid**, ethyl ester (v. KOSTANECKI and FROEMSDORFF), A., i, 303.
- 4-Hydroxynicotinic acid** (KIRPAL), A., i, 564.
- Hydroxynitriles**, formation of acetals from (STOLLE), A., i, 468.
- Hydroxyoxamide** and its ethyl ester, silver salt, and acetyl derivative (PICKARD, ALLEN, BÖWDLER, and CARTER), T., 1565; P., 1902, 197.
- 3-Hydroxyphenanthraphenazine** and its acetate and benzoate (WERNER), A., i, 626.
- 2-Hydroxyphenanthraquinone** and its acetate (WERNER), A., i, 628.
- 3-Hydroxyphenanthraquinone** and its acetate and their nitro-derivatives and phenylhydrazone (WERNER), A., i, 626.
- 9-Hydroxyphenanthrene** (PSCHORR and SCHRÖTER), A., i, 672.

- 9-(or 10-)Hydroxyphenanthrene**, 3:10-(or 9-)diamino- and 3-nitro-10-(or 9-)amino- (SCHMIDT), A., i, 757.
- 10-Hydroxyphenanthrene**, 9-amino-(morphigenine), and its acetyl derivatives and hydrochloride (PSCHORR and SCHRÖTER), A., i, 672; (VAHLEN), A., i, 727.
- 10-Hydroxy-9-phenanthrylphenylcarbamide** (PSCHORR and SCHRÖTER), A., i, 672.
- Hydroxyphenoxozone**, dinitro- (HILLER), A., i, 50.
- 5-p-Hydroxyphenyl-2-amino-3-methylpheno- $\alpha\beta$ -naphthacridine** (ULLMANN), A., i, 499.
- 5-Hydroxy- α -phenylazo- β -methylimino- δ -nitrophenylvaleric acid**, ethyl ester (PRAGER), A., i, 64, 578.
- 7-Hydroxy-2-phenyl-1:4-benzopyranol** and its salts and acetyl derivatives (BÜLOW and v. SICHERER), A., i, 113.
- 7-Hydroxy-2-phenyl-4-benzylidene-1:4-benzopyranol**, its hydrochloride, picrate, acetyl, benzoyl, and 8-nitroso-derivative (BÜLOW and GROTKOWSKY), A., i, 484.
- 7-(or 5-)Hydroxy-2-phenyl-4-benzylidene-5-(or 7-)methyl-1:4-benzopyranol** and its salts and acyl derivatives (BÜLOW and GROTKOWSKY), A., i, 555.
- p-Hydroxyphenylethylamine**, occurrence of, in pancreatic digestion (EMERSON), A., ii, 271.
- o-Hydroxyphenylethylcarbinol**, *ac-* and *i-* (FISCHER and SLIMMER), A., i, 621.
- o-Hydroxyphenyl ethyl ketone** (FISCHER and SLIMMER), A., i, 622.
- β -Hydroxy- β -phenyl-2-ethyl-6-phenylpyridine**, *p*-nitro- (*6-phenyl-2-picolylp-nitropiperidylalkine*), and its salts (OLLENDORFF), A., i, 827.
- β -Hydroxy- β -phenyl-2-ethylpyridine** (*phenyl-2-picolyalkine*), *p*-amino- and *p*-nitro-, and their salts (KNICK), A., i, 394.
- o-Hydroxyphenylmethane-bis-2:5-dimethylpyrrole-3-carboxylic acid**, ethyl ester (FEIST, WIDMER, and SAKOWITSCH), A., i, 490.
- β -4-Hydroxyphenyl- β -methoxypropionic acid**, α :3:5-tribromo-, and its methyl ester, and their acetates (ZINCKE and LEISSE), A., i, 615.
- 5-Hydroxy-5-phenyl-10-methyl-5:10-dihydroacridine** and its ethers (DECKER, HOCK, and DJIWONSKY), A., i, 830.
- 4-Hydroxy-5-phenyl-3-methylpyrazole** (SACHS and RÖHMER), A., i, 837.
- 2-Hydroxy-3-phenyl-4-methylquinoline** (CAMPUS), A., i, 178.
- 3-Hydroxy-2-phenyl-6-(or 7-)methylquinoxaline**, *m*-bromo-*o*-amino- (v. KORCZYNSKI and MARCHLEWSKI), A., i, 647.
- p-Hydroxyphenyl- α -naphthylamine**, 4-mono- and 4:8-di-nitro-, and their sulphur derivatives (CHEMISCHE FABRIK VORM. SANDOZ), A., i, 366.
- 3,4-Dihydroxyphenylpropionic acid**, 3:5-di- and $\alpha\beta$ -3:5-tetra-bromo-, and the methyl ester of the dibromo-compound (ZINCKE and LEISSE), A., i, 615.
- p-Hydroxyphenylpyridazine**, and its amino- and nitro-compounds (POPPIENBERG), A., i, 61.
- p-Hydroxyphenylpyridazone** and its benzoyl derivative (POPPIENBERG), A., i, 61.
- 6-(or 7-)Hydroxy-3-phenylisoquinoline**, and its hydroiodide salts, and 1-iodo-derivative (ONNERTZ), A., i, 100.
- 2-Hydroxy-3-phenylquinoxaline** and its 3-*o*-amino- and -nitro-derivatives, and their 6-(or 8)-methyl and -ethoxy derivatives (BURACZEWSKI and MARCHLEWSKI), A., i, 120.
- 3-Hydroxy-2-phenylquinoxaline**, bromoamino- and chloroamino-derivatives (v. KORCZYNSKI and MARCHLEWSKI), A., i, 647.
- 2-Hydroxy-1-phenyl-4- $\alpha\beta\gamma\delta$ -tetrahydroxybutylglyoxaline** (STEUDEL), A., i, 399.
- m-Hydroxyphenyl-*p*-tolylamine**, and its sulphonie acids, and amino-, bromo-, nitro-, and nitroso-derivatives (GNEHM and VEILLON), A., i, 287.
- α -Hydroxyphenyl *p*-tolyl ketone** and its benzoyl and dibromo-derivatives, oxime, and phenylhydrazone (ULLMANN and GOLDBERG), A., i, 792.
- m*-Hydroxyphenyl-*p*-tolylnitrosoamine** and its sulphonie acid (GNEHM and VEILLON), A., i, 287.
- 4-Hydroxyphthalic acid** and its esters, and their conductivity (WEGSCHEIDER), A., i, 617, 618; (WEGSCHEIDER and PIESSEN), A., i, 619.
- β -Hydroxy- β -piperonyl- α -dimethylpropionic acid** and its salts (MUSCHINSKY), A., i, 620.
- Hydroxypivalic acid**, phosphate of (BLAISE), A., i, 530.
- α -Hydroxypropionic acid**. See Lactic acid.
- 5-Hydroxy-1-isopropylbenzoquinone**, 3:6-dichloro- (BÖTERS), A., i, 474.
- 5-Hydroxy-2-isopropylbenzoquinone**, 3:6-dibromo-, and its *p*-toluidine and xylidine salts (BÖTERS), A., i, 473.

- ϵ -Hydroxy- β -isopropylheptoic acid, ethyl ester** (WALLACH and FRESENIUS), A., i, 800.
- Hydroxyisopropylhypophosphorous acid** and its salts and esters (MARIE), A., i, 255.
- 4- α -Hydroxypropyl-1-methylbenzene** and its acetate, phenylurethane, and chloride (KLAGES), A., i, 612.
- 2- β -Hydroxypropyl-6-phenylpyridine, ω -trichloro-, and its platinichloride (OLLENDORFF), A., i, 828.**
- Hydroxyisopropylphosphinic acid** and its salts (MARIE), A., i, 431. and its esters and benzoyl derivative (MARIE), A., i, 714.
- 2- β -Hydroxypropylpyridine, γ -trichloro- and its salts (FEIST), A., i, 492.**
- 4-Hydroxy-2-isopropylquinoline** (CAMPs), A., i, 178.
- 2- α -Hydroxypropyl-1:3:5-trimethylbenzene** and its phenylurethane and chloride (KLAGES), A., i, 612.
- Hydroxypyrazolone** derivatives of the naphthalene series (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 730.
- Hydroxypyridines**, from meconic acid derivatives (PERATONER), A., i, 493.
- 6-Hydroxy-4- α -pyridylpyrimidine** and its 2-methyl, 2-phenyl, and 2:5-phenylmethyl derivatives and their acetyl compounds (PINNER, DONCHI, DREXLER, and BAY), A., i, 177.
- Hydroxypyrrolidine-2-carboxylic acid** from gelatin (FISCHER), A., i, 699.
- 3-Hydroxyquinaldine** and its salts (KOENIGS and STOCKHAUSEN), A., i, 693.
- 4-Hydroxy-2-quinoline** (CAMPs), A., i, 178.
- Hydroxyquinolines**, 2- and 4-, syntheses of (CAMPs), A., i, 178, 396.
- 6-Hydroxyisiquino- β -pyridine** and its salts (MARCKWALD and DETTMER), A., i, 235.
- 2-Hydroxy-1:2:3:6-tetramethyldihydrobenziminoazole** (FISCHER, RIGAUD, and BECKER), A., i, 400.
- 3-Hydroxy-2:2:5:5-tetramethylpyrrolidine** and its hydrochloride and mandelate (PAULY), A., i, 560.
- Hydroxytetraphenylmethane** (v. BAEYER and VILLIGER), A., i, 769.
- Hydroxyterephthalic acid**, and its esters, and their conductivity (WEGSCHEIDER), A., i, 618, 619.
- Hydroxy-toluamide** and -toluonitrile, dinitro, and compound of the nitrile with aniline (BORSCHE and LOCATELLI), A., i, 226.
- 2-Hydroxy- m -toluic acid (β -cresotic acid), amides, and chloride and their bromo-, nitro- and acetyl derivatives, and ethyl esters (FORTNER), A., i, 150.**
- Hydroxytoluketone**, tetrachlorobromo. See Toluquinol, tetrachlorobromo..
- 8-Hydroxy-2- α -tolylaminonaphthalene-6-sulphonic acid** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 92.
- Hydroxy- β - p -tolyl- α -dimethylpropionic acid**, synthesis of, and its salts (ZELTNER), A., i, 371.
- Hydroxy-3- p -tolylpyridazine** and its salts (KATZENELLENBOGEN), A., i, 122.
- Hydroxytriaquadipyridinechromium salts** (PFEIFFER), A., i, 729.
- 2-Hydroxy-1:3:5-trimethylbenzene, 4:6-disiocyanato** (KAUFLER), A., i, 278.
- 2-Hydroxy-1:3:6-trimethylidihydrobenziminoazole** and its salts (FISCHER, RIGAUD, and BECKER), A., i, 400.
- N-Hydroxy-2:4:4-trimethyl- $\Delta^{2:5}$ dihydroquinolide** (WOLFF, GABLER, and HEYL), A., i, 676.
- β -Hydroxy- $\beta\gamma$ -trimethylpentanedioic acid**, isomeric lactic acids from (BALBIANO), A., i, 741.
- p-Hydroxytriphenylcarbinol** and its sodium derivative (BISTRZYCKI and HERBST), A., i, 776.
- p-Hydroxytriphenylmethane** and di-bromo-, and their acetates (BISTRZYCKI and HERBST), A., i, 777.
- γ -Hydroxyundecocic acid** (NEF), A., i, 6.
- α -Hydroxy-*n*- and -*iso*-valerenilides** (LAMBLING), A., i, 603.
- γ -Hydroxyvaleric acid**, α -amino- (FISCHER and LEUCHS), A., i, 269.
- α -Hydroxy-*n*- and -*iso*-valeric acids**, and their ethyl esters, phenylurethanes of, and the lactams of the acids (LAMBLING), A., i, 603.
- Hydroxvinylcoumarin** (WIDMAN), A., i, 374.
- 4-Hydroxy-*m*-xylene**, bromo-derivatives and their acetyl compounds (ZINCKE and TRIPP), A., i, 285.
- p -Hydroxy-xylene.** See also Xylenol.
- o -Hydroxy-*p*-xylyl alcohol**, methyl ether (AUWERS and ANSELMINO), A., i, 215. bromide, tribromo- (AUWERS and ANSELMINO), A., i, 215.
- p -Hydroxy-*p*-xylylacetic acid, dibromo-** (AUWERS and SCHUMANN), A., i, 148.
- 5-Hydroxy-2-*o*-xylylaminonaphthalene-7-sulphonic acid** (BADISCHE ANILIN- & SODA-FABRIK), A., i, 92.
- 5-Hydroxy-xylylene dibromide, 2:4:6-tribromo-** (ANSELMINO), A., i, 216.

- Hydroxy-p-xylylene dibromide, tribromo.** See *p-Xylenol, s-penta-bromo-*
- bromohydrin, tribromo-, methyl ether** (AUWERS and ANSELMINO), A., i, 215.
- Hyoscine** and its salts (HESSE), A., i, 51, 817; (GADAMER), A., i, 173.
- Hypertonic salt solutions**, effects of intravascular injection of, on blood constituents (VAN LEER), A., ii, 411.
- Hyperuranic acid.** See Uranic acid.
- Hypnotoxin**, physiological action of (PORTIER and RICHET), A., ii, 343.
- Hypochlorous acid.** See under Chlorine.
- Hypoiodous acid.** See under Iodine.
- Hypophosphorous acid.** See under Phosphorus.
- Hypophysitis**, physiology of the (v. CYON), A., ii, 162.
- Hystazarin** and its dimethyl ether, hydrolysis of (LIEBERMANN and HOHENEMSER), A., i, 548.
- I.**
- Ianthone**, separation of, from ionone (HAARMANN & REIMER), A., i, 471.
- Ibogaine** and its salts and physiological action (DYBOWSKI and LANDRIN), A., i, 114.
- Ibogine** (HALLER and HECKEL), A., i, 174.
physiological action of (LAMBERT and HECKEL), A., ii, 219.
- Ichthylepidin** in the scales of American fishes (GREEN and TOWER), A., ii, 415.
- Illuric acid** and its salts and isomeride (TSCHIRCH and KETO), A., i, 167.
- Ilvaite** from Siorarsuit, Greenland (BÖGGILD), A., ii, 512.
- Imino-ethers**, synthesis of (LANDER), T., 591; P., 1902, 72.
transformation of, into acid amides (WISLICENUS and KÖRBER), A., i, 211.
hydrochlorides of, reduction of, to aldehydes and their derivatives and to amines (HENLE), A., i, 790.
- Iminothiocarbonic esters**, aromatic (DELÉPINE), A., i, 702.
- Immune sera**, protective substances of (WALKER), A., ii, 163.
substances (PICK), A., ii, 163, 278.
- Immunisation** against immune serum (WALKER), A., ii, 280.
- Immunity**, natural, against alkaloids (ELLINGER), A., ii, 162.
- Inanition**, glycogen during (PFLÜGER), A., ii, 618.
protein metabolism in (VOIT), A., ii, 33.
- Incrustation** from the Stone Gallery of St. Paul's Cathedral (CLAYTON), P., 1901, 201.
- Indazole** derivatives (FISCHER and BLOCHMANN), A., i, 645.
- Indene**, mercury compounds of (BOES), A., i, 151.
- Indiarubber.** See Caoutchouc.
- Indican**, quantity of, in *Indigofera tinctoria* (SCHULTE IM HOFE), A., ii, 347.
detection of, in urine (STRZYŻOWSKI), A., ii, 186.
- Indicator**, iodocasinasan (GLÜCKSMANN), A., ii, 473.
litmus as an (BERTHELOT), A., ii, 222.
litmus-silk as (EMICH), A., ii, 45, 351.
- Indicators** (GLASER), A., ii, 222.
in acidimetry (JUNGCLAUSSEN), A., ii, 46.
See also Analysis.
- Indigo**, manufacture of, from *Indigofera tinctoria* (SCHULTE IM HOFE), A., ii, 347.
- Indigo-red**, reduction products of (VAUBEL), A., i, 542.
- Indigotin** and its polymeride (MAILLARD), A., i, 371.
from ethereal carbonyldiphenylglycinates (BADISCHE ANILIN- & SODA-FABRIK), A., i, 101.
preparation of (ERDMANN), A., i, 290.
formation of, from phenylglycine-o-carboxylic acid (VORLÄNDER, MUMME, and WANGERIN), A., i, 454.
reduction products of (VAUBEL), A., i, 542.
methyl derivatives of (KUHARA and CHIKASHIGE), A., i, 227.
estimation of, in fabrics (BINZ and RUNG), A., ii, 544.
- Indigotin**, 6,6'-dichloro-, and its -sulphonic acid (BADISCHE ANILIN- & SODA-FABRIK), A., i, 458.
- Indigo-white**, di- and tetra-acetyl derivatives of (VORLÄNDER and DRESCHER), A., i, 458.
carbonyl derivatives of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 96.
- Indirubin**, formation of, from indigotin (MAILLARD), A., i, 371.
- Indole**, preparation of, from pyrrole (DENNSTEDT), A., i, 396.
- Indole-2-carboxylic acid**, azoimide and hydrazide of (PICCININI and SALMONI), A., i, 492.
- 2-Indoleurethane** (PICCININI and SALMONI), A., i, 492.
- Indone**, dibromo- and dichloro- (GLAWE), A., i, 782.

- Indoneacetic acids** (STOBBE and VIEWIG), A., i, 542.
- Indophenazine**, bromo- and chloro-derivatives (v. KORCZYNSKI and MARCHLEWSKI), A., i, 646.
- Indophenazine-7-(or 8)-carboxylic acid** (BURACZEWSKI and MARCHLEWSKI), A., i, 121.
- Indoxyl**, crystallised (VORLÄNDER and DRESCHER), A., i, 456.
formation of, from phenylglycine-o-carboxylic acid (VORLÄNDER, MUMMEL, and WANGERIN), A., i, 454.
and phenol, formation of, as intermediate metabolic products, and their relation to glycuronic acid excretion (LEWIN), A., ii, 272 ; (MAYER), A., ii, 520.
and urea, correlated production of, in the organism (GNEZDA), A., ii, 339.
- Indoxyluria** (BLUMENTHAL), A., ii, 620.
- Infants**, new-born, chemical composition of (CAMERER, SÖLDNER, and HERZOG), A., ii, 413.
iron in the blood of (NICLOUX and VAN VYVE), A., ii, 618.
suckling, nutrition of (OPPENHEIMER), A., ii, 153.
See also Children.
- Infusoria**, reactions of, with carbonic and other acids (JENNINGS and MOORE), A., ii, 159.
fixed, reactions to stimuli in (JENNINGS), A., ii, 674.
- Inorganic compounds**, allotropic modifications of (HERZ), A., ii, 82.
electro-affinity as the basis for the systematisation of (LOCKE), A., ii, 240 ; (ABEGG and BODLÄNDER), A., ii, 642.
insoluble, in colloidal solution (DE BRUYN), A., ii, 646.
- Internal friction**. See Viscosity.
- Intestinal absorption** (REID), A., ii, 412.
(rectal) of carbohydrates (REACH), A., ii, 413.
juice, human (HAMBURGER and HEKMA), A., ii, 515.
action of, on abrin and toxins (SIEBER and SCHUMOFF-SIMONOWSKI), A., ii, 680.
of dogs, presence of erepsin in (SALASKIN), A., ii, 571.
wall, passage of protein through the (COHNHEIM), A., ii, 93.
- Intestine**, small, absorption of simple stereoisomeric sugars in the (NAGANO), A., ii, 516.
digestion in the (KUTSCHER and SEEMANN), A., ii, 335, 571.
- Intramolecular migrations**, atomic (MONTAGNE), A., i, 472.
- Intramolecular migrations** of acyl groups (WISLICENUS and KÖRBER), A., i, 72.
- Inversion**, velocity of. See Affinity.
points of heats of dilution (COLSON), A., ii, 4, 198.
temperature. See Thermochemistry.
- Invertase** from yeast (OSHIMA ; BOKORN), A., i, 848.
action of acids and alcohols on (BOKORN), A., i, 848.
- Invertebrates**, the respiratory value of coelomic fluid in certain (CUÉNOT), A., ii, 215.
- Invert sugar**. See under Sugar.
- Iodemolite** (PRIOR and SPENCER), A., ii, 403.
- Iodine**, pure (LADENBURG), A., ii, 314.
free, formation of, from iodoform, by organs (ALTENBERG), A., ii, 158.
atomic weight of (LADENBURG), A., ii, 498.
determination of the molecular weight of, by the boiling point method (ODDO), A., ii, 6.
solubility of, in nitrobenzene containing potassium iodide (DAWSON and GAWLER), T., 528 ; P., 1902, 69.
catalytic action of, in the bromination of benzene (BRUNER), A., ii, 447.
action of, in the hydrolysis of starch, and dextrans (HALE), A., i, 533.
compounds of, with tellurium (GUTBIER and FLURY), A., ii, 653.
variation in the amount of, in blood (GLEY and BOURCET), A., ii, 619.
amount of, in sheep's thyroid (WOHLMUTH), A., ii, 274.
- Iodine bromide**, preparation of, and application of, in the analysis of fats and oils (HANUŠ), A., ii, 112.
trichloride, double salts of, with chlorides of bivalent metals (WEINLAND and SCHLEGELMILCH), A., ii, 315.
- Hydroiodic acid** (*hydrogen iodide*), reaction between, and nitric acid (ECKSTÄDT), A., ii, 130.
- Iodides** of sulphur (MACIVOR), A., ii, 650.
soluble, estimation of, volumetrically (RICHARD), A., ii, 691.
- Triiodides** (OSAKA), A., ii, 12.
- Iodates**, action of, on haloid salts, influence of the concentration of the hydrogen ions on the (DITZ and MARGOSCHES), A., ii, 12.
- Periodic acid**, electrolytic preparation of, and estimation of, in presence of iodic acid (MÜLLER and FRIEDBERGER), A., ii, 556.

Iodine:—

Periodates, preparation of (ROQUES and GERNGROSS), A., ii, 649.

Orthoperiodic acid, conversion of, into *n*-periodic acid (LAMB), A., ii, 252.

Hypoiodous acid (TAYLOR), P., 1902, 72.

Iodine, detection and estimation of:—

detection of bromine and, in presence of thiosulphates (LEUBA), A., ii, 691.

and hydriodic acid, estimation of, in iodinated proteids (SCHMIDT), A., i, 251; ii, 627.

estimation of, electrolytically, in presence of bromine and chlorine (MÜLLER), A., ii, 287.

estimation of, volumetrically, in presence of bromine and chlorine (THOMAS), A., ii, 472.

Iodine absorption, determination of, by iodine monochloride (WIRS), A., ii, 586.

Iodine atom, configuration of the (PETERS), T., 1350; P., 1902, 184.

Iodoform, formation of free iodine from, by organs (ALTENBERG), A., ii, 158. detection and decomposition of (SCHMIDT), A., ii, 109.

detection of, in presence of organic iodine compounds (SCHMIDT), A., ii, 110.

Ionisation and Ions. See Electrochemistry.

Ionone, separation of, from ianthone (HAARMANN & REIMER), A., i, 471.

β-Ionone (HAARMANN & REIMER), A., i, 471, 722.

γ-Ionone, preparation of (HAARMANN & REIMER), A., i, 722.

Iononecarboxylic acids. See Citralideneacetoacetic acids.

Ipecacuanha, Indian, composition of (PAUL and COWNLEY), A., ii, 686.

root, evaluation of (FRERICHS and DE FUENTES TAPIS), A., ii, 711.

Ipohine and its physiological action (HARTWICH and GEIGER), A., i, 115.

Iridium double nitrites with ammonium, potassium, and sodium (LEIDIÉ), A., ii, 566.

chloronitrite, compound of, with potassium chloride (LEIDIÉ), A., ii, 566.

Iron, passive (FINKELSTEIN), A., ii, 81. crystallisation of (OSMOND and CARTAUD), A., ii, 400.

pure, electrical resistance of (BENDICKS), A., ii, 439.

increase of electrical resistivity caused by alloying, with various elements (BARRETT), A., ii, 377.

Iron, a reaction of (v. CORDIER), A., ii, 457.

action of ammonia solution on (PENNOCK and MORTON), A., ii, 426.

action of magnesium chloride on (Ost), A., ii, 657, 659.

behaviour of salt solutions towards, in presence of copper (Ost), A., ii, 658.

compounds of, with silicon (LEBEAU), A., ii, 135, 264, 457.

in hen's eggs (HARTUNG), A., ii, 618. in the blood of newly born infants (NICLOUX and VAN VYVE), A., ii, 618.

amount of, in lymphatic glands (GUILLEMONT and DELAMARE), A., ii, 217.

relationship of, and pigments in the liver and skin (FLORESCO), A., ii, 157.

in human liver cells (BIELFELD), A., ii, 517. condition of, in the spleen (BRODIE), A., ii, 339.

Iron alloys with aluminium (GUILLET), A., ii, 264.

with antimony, copper, lead, and tin, analysis of (PONTIO), A., ii, 478.

with silicon, magnetism of (JOUVE), A., ii, 595.

Iron salts, influence of the separation of sulphur on the precipitation of (COPPADORO), A., ii, 23.

peroxide, crystallisation of (DITTE), A., ii, 326.

silicide, formation of (LEBEAU), A., ii, 264.

Ferric chloride, colour changes of (DONNAN and BASSETT), T., 955; P., 1902, 164.

hydroxide, action of sulphurous acid on (CARPENTER), T., 8; P., 1901, 212.

oxide and hydroxides (RUFF), A., ii, 22.

action of alumina on, at white heat (WARTH), A., ii, 209.

hydrated. See Hydrogöthite.

sulphate, acid (SCHARIZER), A., ii, 143.

Ferrous salts, oxidation of solutions of, by free oxygen (MCBAIN), A., ii, 209.

chloride, density of aqueous solutions of (DUNN), A., ii, 400.

compound of, with pyridine (PFEIFFER), A., i, 175.

vanadous sulphate (PICCINI and MARINO), A., ii, 664.

Iron organic compounds:—

Ferric compounds, coloured organic (HANTZSCH and DESCH), A., i, 708.

ferrocyanide (MATUSCHEK), A., i, 272.

- Iron ore**, magnetic, occurrence of monazite in (DERBY), A., ii, 331.
 titaniferous, from German East Africa (BORNHARDT and KÜHN), A., ii, 668.
 separation of, in basic igneous rocks (VOGT), A., ii, 32.
- Iron pyrites**. See Pyrites.
- Cast iron**, condition of silicon in (LEBEAU), A., ii, 135.
- Steel**, electrical resistance of (BENEDICKS), A., ii, 439.
 a reaction of (V. CORDIER), A., ii, 457.
 estimation of carbon in (LEFFLER), A., ii, 355.
 estimation of carbon in, by direct combustion (BLOUNT), A., ii, 174.
 estimation of molybdenum in (AUCHY), A., ii, 430.
 estimation of phosphorus and sulphur in (ANTONY), A., ii, 47.
 estimation of silicon in (AUCHY), A., ii, 174.
- Iron (in general)**, estimation and separation of:-
 estimation of, colorimetrically (SEILER and VERDA), A., ii, 699.
 estimation of, volumetrically (SCHMATTOLA), A., ii, 108; (GINTL), A., ii, 429.
 estimation of, in metabolism experiments (NEUMANN), A., ii, 176, 583.
 estimation of, in urine (NEUMANN), A., ii, 583.
 electrolytic estimation of copper in (KOCHE), A., ii, 357.
 estimation of manganese in (NOYES and CLAY), A., ii, 430.
 estimation of phosphorus and sulphur in (ANTONY), A., ii, 47.
 colorimetric estimation of sulphur in (LINDLAY), A., ii, 425.
 estimation of sulphur in, by Eschka's method (STEHMANN), A., ii, 699.
 separation of (NICOLARDOT), A., ii, 22.
 quantitative separation of, from zirconium (GUTBIER and MÜLLER), A., ii, 701.
- Iron-carbon systems**, chemical equilibrium of (CHARPY and GRENET), A., ii, 209.
- Isatin** and its derivatives (BURACZEWSKI and MARCHLEWSKI), A., i, 120; (V. KORCZYNSKI and MARCHLEWSKI), A., i, 646.
- Isatinoxime** benzyl ether and its bromo-, chloro-, and nitro-derivatives (V. KORCZYNSKI and MARCHLEWSKI), A., i, 648.
- Isatocyanin** (MARCHLEWSKI), A., i, 616.
- Isatoic acid** and its hydrogen sodium salt (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 454.
- Isatomalononitrile** (WALTER), A., i, 874.
- Isomerism**, distinction between, and polymorphism (WEGSCHEIDER), A., ii, 126; (BRUNI), A., ii, 448.
 in the cobalt-tetrammine series (HOFMANN and JENNY), A., ii, 81.
- Isomorphism** of selenates and tellurates (NORRIS and KINGMAN), A., ii, 15.
- Isomorphous mixtures**, volume relations and optical characters of (WULFF), A., ii, 444.
- Isoprenic acid** (IPATIEFF), A., i, 132.
- Isotherms** for mixtures of hydrogen chloride and ethane (QUINT GZN), A., ii, 60.
- Isonitric salt solutions**, diuretic action of (HAAKE and SPIRO), A., ii, 416.
- J.**
- Jacarandin** and its diacetyl and dibenzoyl derivatives (PERKIN and BRIGGS), T., 217; P., 1902, 11.
- Jacquemase** (POZZI-ESCOT), A., i, 655.
- Jadeiteaxes**, composition of (BERWERTH), A., ii, 214.
 rocks in the Western Alps and in Liguria (FRANCHI), A., ii, 214.
- Jadeite** from Cassine (Acqui) (COLOMBA), A., ii, 612.
- Jamesonite** from New Jersey (CHESTER), A., ii, 611.
- Jams**, polarisation of (TOLMAN), A., ii, 537.
 detection of gelatin and gelose in (DESMOULIÈRE), A., ii, 588.
- Jasmine** blossoms, oil of (ERDMANN), A., i, 229.
- Jellies**, polarisation of (TOLMAN), A., ii, 537.
- Juniper**, empyreumatic oil of (CATHELINEAU and HAUSSER), A., i, 44.
- K.**
- Kaempferia Galanga**, oil of, constituents of (VAN ROMBURGH), A., i, 633.
- Kainite**. See Agricultural Chemistry.
- Kairoline-6-, -7-, and -8-carboxylic acids** (FISCHER and ENDRES), A., i, 693.
- Kampherol** and its salts, and tribromo- and tetra-acetyl derivatives from the flowers of *Delphinium Consolida* (PERKIN and WILKINSON), T., 585; P., 1900, 182.
 and its tetra-acetate (PERKIN), T., 475; P., 1901, 87.
- methyl ether, constitution of (PERKIN and ALLISON), T., 472.

- Kaolin** from near Spezia, Italy (SALLE), A., ii, 409.
- Katabolism**, nitrogenous, in the hedgehog (NOË), A., ii, 337.
- Kephalin** from brain (KOCH), A., ii, 676.
- Keratin**, action of superheated steam on (BAUER), A., i, 846.
- Kermes mineral** (FEIST), A., ii, 507.
- Kerosenes**, commercial, from Kieff (KUDISCH), A., i, 333.
- Ketocampholenic acid**, esters (BÉHAL), A., i, 420.
- Ketodihydrocampholenic acid**, constitution of (BÉHAL), A., i, 420.
- 4-Ketodihydrotoluene**, 3:5-dibromo-1-nitro- (AUWERS), A., i, 217.
- 3-Keto-1:1-dimethyl- Δ^1 -tetrahydrobenzene**, bromo-derivatives and 5-chloro- (CROSSLEY and LE SUEUR), P., 1902, 238.
- γ -Keto- $\alpha\beta$ -diphenylinopentane- α -carboxylic acid**, ethyl ester, reactions of (SIMON), A., i, 422.
- Keto-3:5-diphenyl- Δ^2 -tetrahydrobenzene-6-carboxylic acid**, ethyl ester (KNOEVENAGEL and SPEYER), A., i, 227.
- Ketohexyltetrone**, benzoyl derivative, and ψ -oxime of (WOLFF, GÄBLER, and HEYL), A., i, 676.
- 4-Keto-1-mono- and -1:3-di-methyl-1-dichloromethylidihydrobenzene** (AUWERS and WINTERNITZ), A., i, 218.
- 2-Ketometylhexamethylene carboxylic acid** and its ethyl ester (EINHORN and KLÄGES), A., i, 74.
- α -Keto- β -methylhexolactone- γ -carboxylic acid** (FICHTER and PREISWERK), A., i, 443.
- 2-Ketometylisopropylhexamethylene-carboxylic acid**, ethyl ester (EINHORN and KLÄGES), A., i, 75.
- 4-Keto-5-methyl- and -5-phenyl-thiazolidine-2-thio-** (WHEELER and JOHNSON), A., i, 761.
- Ketone**, $C_9H_{12}O_2$, from 1:8:9-trihydroxyterpane (WALLACH and RAHN), A., i, 804.
- $C_9H_{14}O$, and its semicarbazone, from α -methyl- δ -isopropyladipic anhydride (MARTINE), A., i, 630.
- $C_{10}H_{10}O_4NCl$, obtained in the preparation of 6:6'-dichloroindigotin (BADISCHE ANILIN- & SODA-FABRIK), A., i, 458.
- $C_{13}H_{10}O_3N_2$, and its salts, oxime and phenylhydrazone, from the oxidation of *p*-nitrophenyl-2-picolyalkine (KNICK), A., i, 394.
- $C_{19}H_{16}O_3$, from piperonylidene-*p*-methoxyacetophenone (SORGE), A., i, 380.
- Ketone**, $C_{22}H_{42}O$, from methyl nonyl ketone (MANNICH), A., i, 593.
- Ketones**, formation of, from β -chloro-alcohols (KRASSUSKY), A., i, 425.
- formation of, from haloid derivatives of olefines (KRASSUSKY), A., i, 261.
- synthesis of, by means of magnesium organic compounds (BLAISE), A., i, 164.
- method of isolating (NEUBERG and NEIMANN), A., i, 572; (FREUND and SCHANDER), A., i, 696.
- behaviour of, towards Tesla rays (KAUFFMANN), A., ii, 191.
- interaction of, with acid chlorides (LEES), P., 1902, 213.
- transformation of, into α -diketones (PONZIO and BORELLI), A., i, 659.
- comparison of, with sulphoxides (SMYTHE), A., i, 221.
- unsaturated dicarboxylic acids from ethyl succinates and (STOBBE), A., i, 459; (STOBBE and NIEDENZU), A., i, 460; (STOBBE, STRIGEL, and MEYER), A., i, 461.
- acetylenic, synthesis of, and their hydrolysis (MOUREU and DELANGE), A., i, 164, 253.
- aromatic, condensation of (SORGE), A., i, 379.
- influence of intranucleal substituents on the reactivity of (POSNER), A., i, 622.
- compounds of, with arsenic acid and with orthophosphoric acid (KLÄGES), A., i, 624.
- cyclic, heat of combustion of (ZUBOFF), A., i, 144.
- mixed, preparation of, by heating the mixed calcium salts of organic acids (LUDLAM), T., 1185; P., 1902, 132.
- unsaturated, action of mercaptans on (POSNER), A., i, 296.
- test for (PILOTY and STOCK), A., i, 735.
- Ketones and Quinones**. See also :—
- Acetone.
 - Acetonylacetone.
 - Acetonylnaphthalimidine.
 - Acetophenone.
 - o*-Acetoxyindanone.
 - Acetylacetone.
 - Acetylaminocetophenones.
 - Acetyl-1:1-dimethylcyclohexanones-3.
 - Acetylisonone.
 - Acetylmesitylene.
 - Acetyl methylheptanone.
 - Acetyl methylheptenone.
 - 2-Acetyl-3-methylquinoxaline.
 - 4-Acetyl-2-phenyl-5-methylfuran.
 - 4-Acetyl-2-phenyl-5-methylpyrrole.
 - 2-Acetyl-3-phenylquinoxaline.
 - p*-Acetyltetrahydrotoluene.

Ketones and Quinones. See :—
 Acridone.
 Aldehydotrichloroquinodichloride.
 Alizarin.
 Alkylacetylacetones.
*iso*Amylacetone.
 3-Amylpyrazolone.
 AnhydروبisdiكetoHydrindene.
 Anhydrobispyrindandione.
 Anhydrotetramethylhaematoxylone.
 Anhydrotrimethylbrazilone.
 Anilino-1:2-diketopentamethylene-2-anil hydrochloride.
 8-Anilino-1-nitroanthraquinone.
 5-Anisidino-2-*isopropylbenzoquinone.*
 Anisylideneacetone.
 AnisylideneCamphor.
 3-Anisylpyridazinone.
 3-Anisylpyridazine.
 Anthrachrysone.
 Anthraquinone.
 Anthrarufin.
 Antipyrine.
 α -Arylaminooanthraquinones.
 Asarone.
 Benzenesulphophenanthraquinones.
 Benzil.
 Benzin.
 Benzophenone.
 Benzo-1:4-pyrene.
 Benzoylacetylacetone.
 Benzoylbutyrylmethane.
 Benzoylcamphor.
 Benzoyldiacetylthane.
 Benzoyl-2:4-diethoxyacetophenone.
 Benzoyl-5-fluorenone.
 $\alpha\alpha$ -Benzoyl-iodo- and -nitro-camphor.
 Benzoyloxyphenanthraquinones.
 Benzoylphenylacetylene.
 Benzoylpuridines.
 ω -Benzylactophenone.
 Benzyl *isoamyl* ketone.
 Benzylcamphor.
 Benzyl cinnamyl ketone.
 Benzyl ethyl ketone.
 γ -Benzylethyl methyl ketone.
 Benzylideneacetone.
 Benzylideneacetophenone.
 Benzylidene-*m*-aminoacetophenone.
 Benzylidene-*p*-anisylideneacetone.
 4-Benzylidenebis-3-phenyl-5-pyrazolone.
 4-Benzylidene-1-*p*-bromophenyl-3-phenyl-5-pyrazolone.
 BenzylideneCamphor.
 Benzylidenedeoxybenzoins.
 γ -Benzylidene-ethyl methyl ketone.
 Benzylideneacetophenone.
 Benzylidene-*p*-methylacetophenone.
 Benzylidene-*m*-methyl ethyl ketone.
 Benzylidene- α -methylpentanone.
 Benzylidene-*m*-methyl propyl ketone.

Ketones and Quinones. See :—
 Benzylidene-*m*-methyl *isopropyl* ketone.
 Benzylidene-*propyl* methyl ketone.
 Benzylidene-*menthone*.
 Benzylidene-*isothujone*.
 Benzyl *p*-methoxycinnamyl ketone.
 Benzyl methylcinnamyl ketone.
 Benzyl 3:4-methylenedioxycinnamyl ketone.
 α -Benzylmethyl ethyl ketone.
 Benzylmethylcyclohexanone.
 Benzyl methyl ketone.
 Benzyl phenylethyl ketone.
 Benzyl *n-propyl* ketone.
 Benzyl stilbyl ketone.
 Bisnaphtharonyl.
*iso*Butylpyrazolone.
 Butyrylmesitylene.
 3-*iso*Butyryl-1-methylcyclopentanone-4.
 Butyrylphenylacetylene.
 Camphidones.
 Camphor.
*iso*Camphor.
 Camphorophorone.
 Camphorquinone.
 Chromone.
 Chrysarobin.
 Chrysazin.
 Chrysoquinone.
 2-Cinnamoyl-3-methylquinoxaline.
 Cinnamylideneacetophenone.
 Cotoin.
 Coumarone.
 ψ -Cunyl methyl ketone.
 Decane- $\zeta\theta$ -dione.
 Deoxybenzoin.
 Deoxytrimethylbrazilone.
 Diacetyl.
 4:6-Diacetyl-5-phenyl-3-methylcyclohexane-3-ol-1-one.
 Dianisylideneacetones.
 Dibenzoyldianthraniylmethane.
 Dibenzoylethylenes.
 Dibenzoylmesitylene.
 Dibenzoyloxydiphenanthrylene.
 2:5-Dibenzoyloxyquinone.
 Dibenzylideneacetone.
 Dibenzyl ketone.
 Dibenzylmethylcyclohexanone.
 Dibenzyl methyl ketone.
 Diisobutyl ketone.
 Di-*n*- and -*iso*-butyryl.
 Dichrysarobin.
 3:4-Diethoxybenzylidene-*m*-nitroacetophenone.
 2:4-Diethoxy-3':5'-dimethoxybenzoylacetophenone.
 Diethoxyhydrindone.
 Diethyl diketone.
 Digitoflavone.
 Dihydroisophorone.

Ketones and Quinones. See :—
 Dihydropulegenone.
 3:4-Dihydroxybenzylidene-*m*-nitroacetophenone.
 5:7-Dihydroxychromone.
 Dihydroxymethylheptanone.
 Dihydroxymethylcyclohexanone.
 1:8-Dihydroxynaphthaketones.
 2:4-Diketo-5- and -3:5-diphenyltetrahydrothioazole.
p-Diketohexahydrotetrazine.
o-Diketomethylcyclohexane.
 Diketones.
 1:2-Diketopentamethylene.
 3:5-Diketo-2-phenyltetrahydrothiazole.
 5:7-Dimethoxychromone.
 Dimethoxyhydrindone.
 Dimethoxymethylenedioxoacetophenone.
 Dimethylaminoacetophenones.
p-Dimethylaminobenzylidene-*m*-aminoacetophenone.
s-Dimethylidiaminodi-*o*-tolyl ketone.
 3:6-Dimethylaminothymoquinone.
 Dimethylcoumarones.
 Dimethylhydrooresorcin.
 Dimethylionones.
 3:3-Dimethylcyclopentanone.
 1:3-Dimethylpyridazone.
 Dimethylpyrone.
 Dinaphthaxanthone.
 Dioxypinene.
 Diphenacyl.
 Dipropionyl.
o-Dipropoxydiphenyltetrahydropyrone.
 2:5-Dipropoxyquinone.
 3:5-Di-*o*-toluidino-1-*isopropylbenzoquinone.*
 Diisovaleryl.
 3:5-Dixylylidinc-1-*isopropylbenzoquinone.*
 Di-*as-m*-xylyldiketopiperazine.
a-*iso*Dypnopinacolin.
 7-Ethoxy-2-benzylchromone.
 6-Ethoxy-1:3-diketo-2-phenylhydrindene.
 Ethoxyindone.
 3-Ethoxy-5-keto-1-phenyl-2:5-dihydrotriazole.
 3-Ethoxyphenanthraquinone.
 6-(or 7-)Ethoxy-3-phenyl-1-benzylphthalazole.
 4-Ethyl-3-amylpyrazolone.
p-Ethylidenequinone.
a-Ethylglutelin.
 14-Ethyl- $\beta_1\beta_2\alpha'_1\beta'_1$ -naphthaeridine.
 Ethyl propyl ketone.
 4-Ethyl-3-propylpyrazolone.
 Ethylsalicylidenecamphor.
 Euxanthone.

Ketones and Quinones. See :—
 Fenchone.
 Filicyl-*n*-butanone.
 Fluorenonequinoline.
 Hexahydroxyanthraquinone.
*cyclo*Hexanolones.
 Hydrocoumarone.
p-Hydroxyacetophenone.
 Hydroxyanthraquinones.
 Hydroxybenzophenone.
 7-Hydroxy-2-benzylchromone.
a-Hydroxybenzylideneacetophenone.
 Hydroxybenzylidene-2-bromoindanones.
 6-Hydroxychromone.
 Hydroxydihydrotetramethylhaematoxyline.
 Hydroxydihydrotrimethylbrazilone.
a-Hydroxy-*aa*-dimethylacetonylacetone.
 Hydroxydimethylpyrone.
 1-Hydroxyerythroanthraquinone.
 3-Hydroxy-5-keto-1-phenyl-2;5-dihydrotriazole.
 3-Hydroxy-5-keto-1-phenyl-2- and -4-methyl-4:5-dihydrotriazoles.
 5-Hydroxy-7-methoxychromone.
 3-Hydroxy-5-methoxy-2-methylquinone.
*iso*Hydroxymethylchrysasin.
p-Hydroxy-*p*-methylhexahydroacetophenone.
 Hydroxyphenanthraquinones.
o-Hydroxyphenyl ethyl ketone.
3-p-Hydroxyphenylpyridazone.
o-Hydroxyphenyl *p*-tolyl ketone.
 5-Hydroxy*isopropylbenzoquinones.*
 Hydroxypyrazolone.
 Hystazarin.
 Ianthone.
 Indone.
 Ionones.
 4-Ketodihydrotoluene.
 3-Keto-1:1-dimethyl- Δ_4 -tetrahydrobenzene.
 4-Keto-1-mono- and -1:3-di-methyl-1-dichloromethylidihydrobenzene.
 4-Keto-5-methyl- and -5-phenylthiazolidine.
 3-Keto-1:2:2:5:5-pentamethylpyrrolidine.
 2-Ketopentoxazolidine.
 4-Keto-1-phenyl-3-methylpyrazolone.
 3-Keto-2:2:5:5-tetramethylpyrrolidine.
 5-Keto-1:2:4-trimethyl-2-dichloromethylidihydrobenzene.
 Ketotrimethylidihydroisoazazole.
 Luteolin.
γ-Lutidone.
 Menthone.
 Mesityl methyl ketone.
 Mesityl oxide.

Ketones and Quinones. See :—
 Mesityl pentadecyl ketone.
 Methoxybenzophenones.
 7-Methoxychromone.
p-Methoxydibenzylideneacetone.
 3'-Methoxy-4'-ethoxybenzoyl-2:4-diethoxyacetophenone.
 3'-Methoxy-4'-ethoxybenzoyl-2:4:6-trimethoxyethylacetophenone.
 2-Methoxyfluorenone.
 Methoxyphenanthraquinones.
o-Methoxyphenyl ethyl ketone.
 5-Methoxy-1-*isopropylbenzoquinone.*
 Methylacetyl methylheptenone.
 10-Methylacridone.
 Methyl *isobutetyl* ketone.
 Methyl *tert*.butyl ketone.
 Methyltrichloroquinodichloride.
 Methyldeoxybenzoin.
 Methylenebisacetylacetone.
 4-Methylenebis-3-methyl-5-pyrazolone.
 4-Methylenebis-3-phenyl-5-pyrazolone.
 3-Methyl-5-ethyl- Δ^2 -cyclohexenone.
 Methyl ethyl ketone.
 Methyl ethylphenacylthetine salts.
 3-Methyl-4-ethylpyrazolone.
 Methyllethyrydiazone.
 Methylheptenone.
 Methylheptyl ketone.
 β -Methylhexanone.
 Methylcyclohexanones.
 Methylcyclohexanose.
 Methylcyclohexenone.
 Methyl hexyl ketone.
 Methylhydrindone.
 Methylionones.
 Methyl β -methylhexyl ketone.
 Methylnataloe-emodin.
 β -Methyl- β -nonenc- β -dione.
 Methyl nonyl ketone.
 ζ -Methyl- α -octene- $\epsilon\gamma$ -dione.
 Methylpentanones.
 β -Methylcyclopentanone.
 Methyl propyl ketone.
 Methylpyridazinephthalone.
 Methyl-pyridazinone and -pyridazone.
 2-Methyl-6-pyridyl methyl ketone.
 Methylsalicylidenecamphor.
p-Methyltetrahydroacacetophenone.
 α -Naphthachromone.
 Naphthaeridone.
 Naphthalidodimethyl ketone.
 Naphthazarins.
 5- α -Naphthylamino-1-nitroanthraquinone.
 Nataloe-emodin.
 α -Octene- $\epsilon\gamma$ -dione.
 Oximinodipropyl ketone.
 Oxyethylpyridone.
 Parasarone.
cycloPentanone.

Ketones and Quinones. See :—
 Δ^2 -cycloPentene-1-one-2-ol.
 ω -Phenacyl-2:4-diethoxyacetophenone.
 4-Phenacyl-3:5-dimethylisooxazole.
 Phenacylnaphthalimidine.
 4-Phenacyl-1-phenyl-3:5-dimethyl-pyrazole.
 Phenanthraquinone.
 3-Phenanthrrolquinone.
 Phenoquinone.
 Phenylacetone.
 Phenylacetylacetophenone.
 Phenylacetyl-*o*-aminoacetophenone.
 Phenylchloromethylenecamphor.
 4-Phenylidihydro-2-picoline.
 1-Phenyl-2:3-dimethyl-5-pyrazolone.
 3-Phenyl-2:6-di-*p*-tolyltetrahydro-1:4-pyrone.
 Phenyl ethyl ketone.
 Phenyl formazyl ketone.
 Phenylhydroxymethylenecamphor.
 Phenyliminobenzophenone.
 1-Phenyl-3-methylpyrazolone.
 3-Phenyl-5-methyl-pyridazinone. and -pyridazone.
 Phenyl naphthalidomethyl ketone.
 Phenyl *n*-propyl ketone.
 3-Phenylquinolineazone.
 Phenyl tetrahydronaphthyl ketone.
 Phenyl *p*-xylyl ketone.
 Phorone.
*iso*Phorone.
 Pinacolin.
 Piperonylidene-*p*-methylacetophenone.
 Propionylacetophenone.
 Propionylbutyryl.
 Propionylmesitylene.
 Propiophenone.
 n -Propyl *isoamyl* ketone.
 4-*iso*Propyldihydroresorein.
 3-Propyl-4-hexylpyrazolone.
*iso*Propylideneacctone.
 Pulegenone.
 Pulegone.
 Pulenone.
 Purpurogallin.
 Pyrazolones.
 Pyridoyl-1-phenylpyrazolones.
 4-Pyridyl butyl ketone.
 Pyridyl dichlorohydroxyquinone.
 Pyridyltrichlorotriketopentamethylene.
 Pyridyl methyl, ethyl, and propyl ketones.
 2-Pyridyl phenethyl ketone.
 Pyrodypnopyrinacolin.
 Pyrone.
 Quinizarin.
 Quinone.
 o -Quinone.
 Quinone C₁₀H₆O₄.

Ketones and Quinones. See :—

- Quinone $C_{20}H_{10}O_7$ (?).
 Quinophthalone.
 Resacetophenone.
 Rufigallic acid.
 Santonin.
 Scutellarein.
 Scutellarin.
 Stilbyl methyl ketone.
 Tetrahydronaphthyl methyl ketone.
 Tetrahydro-*p*-tolyl methyl ketone.
 3:3':4':5'-Tetrahydroxyflavone.
 2:4:6:4'-Tetramethoxybenzoylacetophenone.
 2:4:6:3'-Tetramethoxy-4'-ethoxybenzoylacetophenone.
 3:3':4':5'-Tetramethoxyflavone.
 Tetramethylidiaminobenzophenone.
 Tetra methylthiomethylxylonone.
 Thujamenthone.
 Thujone.
*iso*Thujone.
 Thymoquinone.
 Thymoquinonetethylmoline.
 7-*p*-Toluidino-1-nitroanthraquinone.
 5-Toluidino-2-*isopropylbenzoquinones*.
p-Tolyl butyl ketone.
o-Tolyl ethyl ketone.
p-Tolyl methyl ketone.
p-Tolyl propyl ketone.
 3-*p*-Tolylpyridazine.
 3-*p*-Tolylpyridazone.
 Triacetoneamine.
 3:3':4'-Trihydroxyflavone.
 $\beta\gamma\delta$ -Triketopentane.
 $\beta\gamma\delta$ -Triketo- δ -phenylbutane.
 3':4':5'-Trimethoxy-2:4-diethoxybenzoylacetophenone.
 2:4:6-Trimethoxydiphenyltriketone.
 2:4:6-Trimethoxy-2'-ethoxybenzoylacetophenone.
 3':5'-Trimethoxyflavone.
 Trimethylbrazilones.
 Trimethyldehydrobrazilone.
 Trimethylcyclohexanone.
 Trimethylcyclohexenone.
 2:4:4-Trinemethylcyclo- Δ^2 -hexenone.
 4:5:5-Trinemethylcyclopentanone.
 3:3:4-Trinemethyl-2-quinolone.
 Tropinone.
*iso*Valeryacetone.
 Vinyldiacetoneamine.
m-Xylinomethyleneacetylacetone.
m-Xylyl pentadecyl ketone.
- Ketonic acid**, $C_9H_{16}O_3$ and its semicarbazone from the oxidation of pulegone (WALLACH and COLMANN), A., i, 724.
- $C_9H_{16}O_3$ and its lactone, oxime, and semicarbazone, from the oxidation of *iso*thujone (WALLACH), A., i, 801.

β -Ketonic acids, esters, synthesis o (MOUREU and DELANGE), A., i, 164.

optically active (LAPWORTH and HANN), T., 1491, 1499; P., 1902, 144, 145.

action of organomagnesium compounds on (GRIGNARD), A., i, 420.

α -derivatives of (LOCQUIN), A., i, 704.

α -substituted, action of nitrous acid on (BOUVEAULT and LOCQUIN), A., i, 704.

Ketonic alcohols, action of nitric acid on (PONZIO), A., i, 134.

3-Keto-1:2:2:5:5-pentamethylpyrrolidine and its additive salts and oxime (PAULY), A., i, 560.

2-Ketopentoxazolidine, 1-nitro- (FRANCHIMONT and LUBLIN), A., i, 427.

1-Keto-5-phenyl-3-cinnameny- Δ^2 -tetrahydrobenzene-6-carboxylic acid, ethyl ester (KNOEVENAGEL and SPEYER), A., i, 227.

4-Keto-1-phenyl-3-methylpyrazolone, and its hydrate, oxime, and phenylhydrazone (SACHS and BARSCHALL), A., i, 504.

ϵ -Keto- β -isopropylheptoic acid and its semicarbazone (WALLACH and FRESENIUS), A., i, 801.

δ -Keto- β -isopropylhexoic acid and its oxime and semicarbazide (CROSSLEY), T., 676; P., 1901, 172; 1902, 86.

Ketoses, isolation of (NEUBERG), A., i, 264, 660.

Ketotariric acid and its oxime (ARNAUD), A., i, 343.

3-Keto-2:2:5:5-tetramethylpyrrolidine and its additive salts (PAULY), A., i, 560.

5-Keto-1:2:4-trimethyl-2-dichloromethylidihydrobenzene and 3:6-di-bromo- (AUWERS and WINTERNITZ), A., i, 218.

Ketotrimethylidihydroisooxazole and its oxime (HARRIES), A., i, 184.

Ketoximes, formation of (FRANCESCONI and MILESI), A., i, 660.

Kidney, extracts of, physiological action of (GERARD), A., ii, 575.

diseased, the work of secretion in (SOETBEER), A., ii, 417.

Kilbrickenite, identity of, with geocronite (PRIOR), A., ii, 404.

Kinases of microbial origin (DELEZENNE), A., ii, 615.

Kissi powder. See *Piper Fumechoni* under Agricultural Chemistry.

Koenenite from Volprichausen, Hanover (RINNE), A., ii, 611.

- Kohlrabi.** See Agricultural Chemistry.
- Kola nut** and its fluid extracts, estimation of alkaloids in (WARIN), A., ii, 483.
- Kosidin, α - and β -Kosin, and Kosotoxins** from Koso flowers (BOEHM and LOBECK), A., i, 167.
- Krypton**, atomic weight and classification of (WILDE), A., ii, 393.
- Ktypeite**, identity of, with conchite (VATER), A., ii, 89.
- L.**
- Laboratory hood**, new construction of (HABERMANN and OESTERREICHER), A., ii, 201.
- Labradorite** from Minnesota (WINCHELL), A., ii, 462.
- Lactams**, formation of, from lactim ethers (WISLICENUS and KÖRBER), A., i, 533.
- Lactanilide**, α -thio- (BECKURTS and FRERICHS), A., i, 764.
- Lactic acid** (*i*-ethylidenelactic acid; α -hydroxypropionic acid), formation of, from pentoses (KATSUYAMA), A., i, 257.
- influence of acidic oxides on the specific rotation of (HENDERSON and PRENTICE), T., 658; P., 1902, 88.
- phenylurethane of, and its salts and lactam (LAMBLING), A., i, 537.
- in the blood of geese (KOWALEWSKI and SALASKIN), A., ii, 619.
- detection and estimation of, in gastric juice (VOURNASOS), A., ii, 364.
- estimation of, in wine (MÖSLINGER), A., ii, 180.
- Lactic acid**, antimony sodium salt (MORITZ and SCHNEIDER), A., i, 703.
- mercury salts (GUERBET), A., i, 703.
- potassium salt, influence of acidic oxides on the specific rotation of (HENDERSON and PRENTICE), T., 658; P., 1902, 88.
- Lactic fermentation.** See Fermentation.
- Lactim ethers**, conversion of, into lactams (WISLICENUS and KÖRBER), A., i, 533.
- Lactobacillus delbrückii* and *L. fermentum* (BEYERINCK), A., ii, 97.
- Lactone**, $C_8H_{18}O_2$, from the compound $C_9H_{18}O_2$ (PETSCHNIKOFF), A., i, 338.
- $C_9H_{18}O_2$, from the acid $C_9H_{16}O_3$ (WALLACH), A., i, 802.
- $C_{10}H_{16}O_2$, obtained in the preparation of pulegenic acid (BOUVEAULT and TÉTRY), A., i, 420.
- $C_{13}H_{16}O_2$, from the acid $C_{13}H_{18}O_3$ (MICHEL and SPITZAUER), A., i, 292.
- Lactone**, $C_{14}H_{17}O_5N$, from the base $C_{14}H_{18}O_4N_2$ (FREUND and BAMBERG), A., i, 556.
- $C_{14}H_{20}O_2$, from the oil of *Asarum canadense* (POWER and LEES), T., 71; P., 1901, 210.
- $C_{14}H_{20}O_3$, from the condensation of ethyl iodoacetate and citraldehyde in presence of zinc (TÉTRY), A., i, 535.
- $C_{17}H_{14}O_3$ and $C_{17}H_{16}O_3$, from the reduction of α -oxy- γ -phenyl- β -benzylidenebutyrolactone and α -oxy- β -phenyl- γ -benzylbutyrolactone (ERLENMEYER), A., i, 543.
- $C_{17}H_{16}O_3$ (four), from the reduction of the lactones $C_{17}H_{14}O_3$ (ERLENMEYER), A., i, 544.
- Lactones**, unsaturated (THIELE), A., i, 152.
- Lactones.** See also:—
- γ -Acetoxy- $\beta\gamma$ -diphenyl- $\Delta\alpha$ -crotonolactone and α -benzylidenebutyrolactone.
 - γ -Acetoxy- α -phenyl- γ -benzylbutyrolactone.
 - Acetylcoumarin.
 - Angelic acid, lactones of.
 - α -Anisylidene- $\Delta\beta$ -angelicalactone.
 - Artemisin.
 - Azlacones.
 - β -Benzhydrylpicololinolactone.
 - Benzoximinoketolactone.
 - Butenolactone.
 - α -isoButyl- β -isopropylbutyrolactone.
 - Campholenolactone.
 - Carboxydimethoxymandelic acid, lactone of.
 - Citrapten.
 - Crotonylolhomonicotinic acid, lactone of.
 - Decoic acid, lactone of.
 - Dehydrocampholenolactone.
 - Desylacetic acid, lactones of.
 - 4:6-Diacetyltribromocoumarin.
 - Dibutyrolactone.
 - Dihydrobrazilic acid, lactone of.
 - Dihydrobrazilinic acid, and *dinitro*, lactones of.
 - Dihydrocornicuaric acid, lactones of.
 - Dihydrohæmatoxylinic acid, lactone of.
 - Dihydrolaurolactone.
 - Dihydroxycampholenolactone.
 - $\alpha\beta$ -Dihydroxy- α -phenyl- γ -benzylbutyrolactone.
 - Dihydroxyvalerolactone.
 - 4:6-Dimethoxy- α -methylcoumarin.
 - $\alpha\alpha$ -Dimethylbutyrolactone.
 - $\beta\gamma$ -Dimethylbutyrolactoneacetic acid, lactone of.

- Lactones.** See :—
 $\gamma\epsilon$ -Dimethyl- γ -(or δ)-hydroxyhydro-sorbitolactone.
 $\beta\gamma$ -Diphenylbutyrolactone.
 $\beta\gamma$ -Diphenyl- $\Delta\alpha$ -crotonolactone.
 $\gamma\delta$ -Diphenylvalerolactone.
 Ethylohomonicotinic acid, lactone of. Galactonolactone.
 β -Hydroxybutyrolactone.
 α -Hydroxy- $\alpha\alpha$ -dimethylglutaric acid, lactone of.
 Hydroxyethyldimethylacetic acid, lactone of.
 p -Hydroxyhexahydrotoluic acid, lactone of.
 γ -Hydroxy- α -ketobutane- $\alpha\gamma$ -dicarboxylic acid, $\alpha\gamma$ -lactone of.
 Hydroxymethylcoumarin.
 m -Mecoinine.
 γ -Methoxy- $\beta\gamma$ -diphenyl- $\Delta\alpha$ -crotonolactone.
 Methyltetronic acid, lactone of.
 α -Oxy- β -phenyl- γ -benzylbutyrolactone.
 α -Oxy- γ -phenyl- β -benzylidenebutyrolactone.
 α -Phenyl- γ -benzyl- $\Delta\alpha$ -crotonolactone.
 Phenyl- $\Delta\alpha$ -crotonolactone.
 3-Phenyl-1-hydrindone-2-acetolactone.
 Thujamenthoneketolactone.
*iso*Thujoneketolactone.
 Trimethylmalic acid, β -lactone of.
 4-Trimethylolmethylpyridine-3-carboxylic acid, lactone of.
 2-Trimethylolmethylquinoline-3-carboxylic acid, lactone of.
 δ -Valerolactone.
- Lactic acid**, $C_9H_{14}O_4$, from thujamenthoneketolactone (WALLACH), A., i, 803.
- Lactose** (*milk sugar*), magnetic rotation of (PERKIN), T., 190; P., 1901, 256.
 quantitative decomposition of, by *Bacillus acidi lactic* (HAACKE), A., ii, 343.
 derivatives of (DITMAR), A., i, 532.
 estimation of, in milk (PATEIN), A., ii, 536.
 estimation of, polarimetrically, in milk (PEYTOUREAU), A., ii, 361.
- iso***Lactose** and its osazone (FISCHER and ARMSTRONG), A., i, 746.
- Lacto-serum** (FULD), A., i, 845.
 coagulation of casein by (MÜLLER), A., i, 409.
- Lævulose** (*d-fructose*), in human body-juices (NEUBERG and STRAUSS), A., ii, 676.
 magnetic rotation of (PERKIN), T., 189; P., 1901, 256.
- Lævulose** (*d-fructose*), β -naphthylhydr- azones of, isomeric (ALBERDA VAN EKENSTEIN and DE BRUYN), A., i, 747.
 phenylmethylosazone, phenylbenzyl- osazone, and diphenylosazone of (NEUBERG), A., i, 264.
- Lamps** for spectra (BECKMANN), A., ii, 373.
- Langbeinite**, formation of (VAN'T HOFF, MEYERHOFFER, and COTTRELL), A., i, 321.
- Lanthanum**, atomic weight of (BRAUNER and PAVLÍČEK), T., 1243; P., 1901, 63; (JONES), A., ii, 563.
 containing didymium and praseodymium, influence of cerium on (MARC), A., ii, 503.
- Lanthanum** sulphate, new hydrate of (BRAUNER and PAVLÍČEK), T., 1262.
- Lard**, Bulgarian (PETKOW), A., ii, 115.
- Latent heats.** See Thermochemistry.
- Laudanine** and its ethers (HESSE), A., i, 307.
- Lauric acid** and its amide, chloride, anilide, toluidide, and salts (CASPARI), A., i, 419.
- Laurolene**, constitution of (ZELINSKY and LEPEŠČKIN), A., i, 143.
- iso***Laurolene**, constitution of, and its hydrobromide and hydriodide (ZELINSKY and LEPEŠČKIN), A., i, 143.
- Laurolic acid** and its isomeride (BREDT, HOUBEN, and LEVY), A., i, 374.
- Lead**, radioactive (GIESEL), A., ii, 78, 208; (HOFMANN and STRAUSS), A., ii, 78; (HOFMANN and WÖFL), A., ii, 261, 397.
 electrolytic preparation of (LINN), A., ii, 475.
 pseudo-solution of (GUTBIER), A., ii, 610.
 action of water on (RŮŽIČKA), A., ii, 77.
 action of distilled water on (CLOWES), P., 1902, 46.
- Lead alloys** with antimony, copper, iron, and tin, analysis of (PONTIO), A., ii, 478.
 with lithium (LEBEAU), A., ii, 256.
 with tellurium (FAY and GILLSON), A., ii, 260.
- Lead** bromo-, chloro-, and iodo-thio-bismuthites (DUCATTE), A., ii, 402.
 chloride, decomposition-tension of molten (SACHER), A., ii, 121.
 hydroxide, solubility of (HERZ), A., ii, 77.
 nitrate, spectrum of (HARTLEY), T., 570; P., 1902, 68.
 dioxide, electrolytic formation of (CHEMISCHE FABRIK GRIESHEIM-ELEKTRON), A., ii, 322.

- Lead:**—
Triplumbic tetroxide (red lead), volumetric evaluation of (SZTERKHERS), A., ii, 531.
- Lead sulpharsenite.** See Baumhauerite. pentathionate, use of, for toning solutions (A. and L. LUMIÈRE and SEYEWITZ), A., ii, 606.
- Lead organic compounds:**—
 thiocyanate, normal and basic (HALL), A., i, 597.
- Lead**, separation of, from antimony, copper, and tin (RÖSSING), A., ii, 230.
- Lead chamber process.** See Sulphuric acid under Sulphur.
- Leather**, estimation of free sulphuric acid in (PAESSLER and SLUYTER), A., ii, 223.
- Leaves.** See Agricultural Chemistry.
- Lecithin** from brain (Koch), A., ii, 676. presence of, in vegetables (SCHLAGDEN-HAUFFEN and REEB), A., ii, 625. action of, on the formed elements of the blood (STASSANO and BILLON), A., ii, 411. action of, on the organism (DESGREZ and ZAKY), A., ii, 575. influence of, on the development of bone and nervous tissue (DESGREZ and ZAKY), A., ii, 465. estimation of, in milk (BORDAS and DE RACZKOWSKI), A., ii, 587.
- Lecithins** (BERNARD), A., ii, 415.
- Lecture experiments**, new (BODROUX), A., ii, 391.
- Lees**, estimation of total tartaric acid in (HUBERT), A., ii, 481.
- Leguminosæ.** See Agricultural Chemistry.
- Leiphaënum** (ZOPF), A., i, 465.
- Lemon** juices, commercial, composition of (SENDTNER), A., ii, 181. oil (SCHMIDT and ADLUNG), A., i, 45. examination of (SCHIMMEL & Co.), A., i, 550; (BURGESS and CHILD), A., ii, 232.
- Lenzinite** from Ventura Co., California (MERRILL), A., ii, 462.
- Leonite** from Leopoldshall (STRAND-MARK), A., ii, 666.
- Lepidolite** from Brassac (Tarn) (ARSAN-DAUX), A., ii, 331. estimation of lithia in (SCHIEFFELIN and LAMAR), A., ii, 428.
- Lepidoptera**, digestive enzymes of some (SAWAMURA), A., ii, 673.
- Leucæmia**, lymphatic, metabolism in (HENDERSON and EDWARDS), A., ii, 277.
- Leucauramine G** (GNEHM and WRIGHT), A., i, 295.
- Leucauramines**, new reactions of (MÖHLAU, HEINZE, and ZIMMERMANN), A., i, 244. aryl, synthesis of (MÖHLAU and HEINZE), A., i, 243.
- o-Leucauraminobenzoic acid** and its sodium salt (MÖHLAU and HEINZE), A., i, 244.
- Leucine** as nutrient for plants (SCHULZE), A., ii, 165, 280. synthesis of an isomeride of (ÉTARD and VILA), A., i, 207; (VILA and VALLEÉ), A., i, 662. derivatives of (FISCHER), A., i, 350. separation of, from glutamic acid by gaseous hydrogen chloride (ÉTARD), A., ii, 182.
- Leucocytes**, physiology of (STASSANO and BILLON), A., ii, 678. enzyme in, which favours tryptic activity (DELEZENNE), A., ii, 616.
- Leucocytosis** following intravenous injections of sodium cinnamate (SHAW), A., ii, 277.
- Leucyl-leucine** (FISCHER), A., i, 351.
- Lichenes** and their constituents (HESSE), A., i, 680; (ZOPF), A., i, 465, 788. derivatives, rotatory power of (SALKOWSKI), A., i, 228.
- Light.** See Photochemistry.
- Light-filters**, simple trough for (WINTHER), A., ii, 437.
- Liliaceæ.** See Agricultural Chemistry.
- Lime.** See Calcium oxide and Agricultural Chemistry.
- Limestones**, crystalline, of Ceylon (COOMÁRA-SWÁMY), A., ii, 567.
- Limettin**, constitution of, and its mono- and di-chloro-derivatives (TILDEN and BURROWS), T., 508; P., 1901, 216.
- Limonene** from oil of rue (POWER and LEES), T., 1590; P., 1902, 193. *d*-**Limonene (carvone)**, magnetic rotation of (PERKIN), T., 292; P., 1902, 29.
- l*-**Limonene**, magnetic rotation of (PERKIN), T., 292; P., 1902, 29.
- d*-**Linalool** from the oil of *Asarum canadense* (POWER and LEES), T., 63; P., 1901, 210.
- Lindera Benzoin** seeds, fatty oil in the (CASPARI), A., i, 419.
- Linseed oil**, constituents of (FOKIN), A., i, 740. metallic soaps from, and their solubility in certain hydrocarbons (VULTÉ and GIBSON), A., ii, 482.
- Lipase** in blood (DOYON and MOREL; HANRIOT), A., ii, 571, 672. in the lower animals (SELLIER), A., ii, 217. non-existence of, in serum (DOYON and MOREL), A., ii, 464.

- Lipase**, relation of, to fat metabolism (LOEVENHART), A., ii, 217.
 hydrolytic action of, towards salts of acid esters (KASTLE), A., i, 655.
- Lipolytic function** of the blood (DOYON and MOREL), A., ii, 411.
- Liquefaction** of gaseous mixtures (CAUBET), A., ii, 382; (KUENEN), A., ii, 491.
- Liqueur wines** and vintage musts, special characters and analysis of (CARI-MANTRAND), A., ii, 712.
- Liqueurs**, estimation of essential oils in (MANN), A., ii, 433.
- Liquid mixtures** of minimum boiling point (HOLLEY), A., ii, 443.
- Liquids**, physical purity of (DWELSHAWERS-DERY), A., ii, 644.
 specific heat of (CROMPTON), P., 1902, 236.
 formula for the expansion of (MALLET and FRIDERICH), A., ii, 644.
 determination of the molecular weight of (KISTIAKOWSKY), A., ii, 307.
 correction of the boiling points of, from observed to normal pressure (YOUNG), T., 777; P., 1902, 108.
 volume and density changes in, due to the absorption of gases (WENZEL), A., ii, 125.
 new method for the determination of the surface tension of (WHATMOUGH), A., ii, 125.
 apparatus for extracting, by chloroform (PREGL), A., ii, 202.
 mixed, indices of refraction of (VAN AUBEL), A., ii, 373.
 of constant boiling point, composition of (YOUNG), P., 1902, 215.
 vapour pressures and boiling points of (YOUNG), T., 768; P., 1902, 107, 218; (YOUNG and FORTEY), P., 1902, 216.
 solvent properties of, in relation to the chemical characters and solvent properties of their components (DAWSON), T., 1086; P., 1902, 179.
 organic, estimation of dextrose in (REALE), A., ii, 234.
- Lithium**, transport number for, in phenol (RIESENFIELD), A., ii, 594, 595.
 excretion of (GOOD), A., ii, 276.
- Lithium alloys** with antimony, lead, and with tin (LEBEAU), A., ii, 256.
- Lithium antimonide** (LEBEAU), A., ii, 256.
 nitrate, spectrum of (HARTLEY), T., 565; P., 1902, 68.
 oxide (*Lithia*), estimation of, in lepidolite (SCHIEFFELIN and LAMAR), A., ii, 428.
- Lithium silicide** (MOISSAN), A., ii, 452.
- Lithium-ammonium**, decomposition of, by ammonium chloride (MOISSAN), A., ii, 72.
 action of hydrogen sulphide on (MOISSAN), A., ii, 72.
- Lithopone**, analysis of (COFFIGNIER), A., ii, 630.
- Litmus extract**, employment and sensitivity of (BERTHELOT), A., ii, 222.
- Litmus-silk** (EMICH), A., ii, 45, 351.
- Liver**, the ammonia removing function of the (BIEDL and WINTERBERG), A., ii, 157; (HORODYNSKI, SALASKIN, and ZALESKI), A., ii, 517.
 autolysis of the, acid formation in (MAGNUS-LEVY), A., ii, 517.
 behaviour of fat during autolysis of the (SIEGERT), A., ii, 34.
 relationship of iron and pigments in the, and skin (FLORESCO), A., ii, 157.
 compounds of arsenic in the (V. ZEYNEK), A., ii, 161.
 compounds of arsenic and mercury in the (SLOWTZOFF), A., ii, 34.
 combination of copper in the (SLOWTZOFF), A., ii, 618.
 formation of lymph by the (BAMBRIDGE), A., ii, 414.
 formation of phenolglycuronic acid in the (EMBDEN), A., ii, 677.
post-mortem occurrence of glycuronic acid and maltose in the (LÉPINE and BOULUD), A., ii, 218.
 degenerated, proteid decomposition products in (TAYLOR), A., ii, 342.
 formation of sugar in the, during perfusion of blood through it (KRAUS), A., ii, 572.
 boiled, non-formation of sugar in (PAVY and SIAU), A., ii, 217.
 of Cephalopods, copper in the (HENZE), A., ii, 94.
- Liver cells**, human, iron in (BIELFELD), A., ii, 517.
- Loeweite**, formation of (VAN'T HOFF and O'TARELLY), A., ii, 461.
 from Wilhelmshall, Magdeburg-Halberstadt (KUBIERSCHKY), A., ii, 406.
- Loganin**, detection of (BOURQUELOT), A., ii, 483.
- Lophine**, *o*-, *m*-, and *p*-amino-, and their salts, and *m*-nitro- (TRÖGER), A., i, 189.
- Lucerne**. See Agricultural Chemistry.
- Luminescence** of gases, influence of radioactive substances on the (DE HEMPTINNE), A., ii, 58.
- Luminosity**, the phenomena of (ARMSTRONG), A., ii, 546.

- d-Lupanine**, decomposition products of (SOLDAINI), A., i, 392, 638.
- Lupinic acid** and its additive salts and methyl ester (WILLSTÄTTER and FOURNEAU), A., i, 558.
- Lupinine**, constitution of, and its compound with phenylcarbamide (WILLSTÄTTER and FOURNEAU), A., i, 557.
- Luteocobalt salts**. See Cobaltaminonium salts.
- Luteolin** and its benzoyl derivatives (PERKIN), T., 1174; P., 1902, 180. identity of, with digitoflavone (KILIANI and MAYER), A., i, 47.
- Lutidines**. See Dimethylpyridines.
- Lutidinecarboxylic acids**. See Dimethylpyridine-di- and -tri-carboxylic acids.
- γ-Lutidone** and its hydrazone (PETRENKO-KRITSCHENKO and MOSESCHWILI), A., i, 190.
- Lutidonecarboxylamide** (CLAISEN and MEYER), A., i, 208.
- ψ-Lutidostyryl** and its 3:5-dibromo-, 3-cyano- and 3- and 5-nitro-derivatives, and **-5-carboxylic acid** and its 3-nitro-derivative (MOIR), T., 100; P., 1901, 69.
- Lymph**, formation of, by the liver (BAMBRIDGE), A., ii, 414. formation and bile secretion (ELLINGER), A., ii, 614. glands. See Glands.
- Lymphagogue action** of the strawberry (MENDEL and HOOKER), A., ii, 520.
- Lysalbic acid** and its salts (PAAL), A., i, 653.
- Lysatinine**, existence of (SIEGFRIED), A., i, 557.
- Lysine**, amount of, in vegetable proteids (SCHULZE and WINTERSTEIN), A., i, 193. detection of (HERZOG), A., i, 486.
- M.**
- Magma**, composition of the, at different stages of an eruption (ARSANDAUX), A., ii, 409.
- Magmas**, density of fluid and solid (DOELTER), A., ii, 332.
- Magnesite** from Hungary (LOCZKA), A., ii, 89.
- Magnesium** in the dog (ALOY), A., ii, 618. metabolism of, in Herbivora (TANGL), A., ii, 272.
- Magnesium alloys** with aluminium (BOUDOUARD), A., ii, 141. with cadmium (BOUDOUARD), A., ii, 501.
- Magnesium alloys** with mercury, action of, on alcohol, and acetaldehyde (MEUNIER), A., i, 335. with nickel, electrolytic preparation of (COEHN), A., ii, 660.
- Magnesium compounds**. See Agricultural Chemistry.
- Magnesium chloride**, density and expansion by heat of solutions of (BREMER), A., ii, 76. action of, on ammonium phosphates (BERTHELOT), A., ii, 258. behaviour of, in a steam boiler (OSR), A., ii, 657, 659. behaviour of, in river waters (ERDMANN), A., ii, 454. compound of, with iodine trichloride (WEINLAND and SCHLEGEL-MILCH), A., ii, 315.
- nitrate, spectrum of (HARTLEY), T., 568; P., 1902, 68.
- oxide (*magnesia*), detection of, in calcium oxalate precipitates (PAGIREFF; TÄUBNER), A., ii, 356.
- potassium and rubidium sulphates, anhydrous (MALLET), T., 1548; P., 1902, 198.
- vanadous sulphate (PICCINO and MARINO), A., ii, 1664.
- Magnesium organic compounds**, action of, on diketones (ZELINSKY), A., i, 593. action of, on ethylene oxide (BLAISE), A., i, 357. action of, on β-ketonic esters (GRIGNARD), A., i, 420. action of, on trioxymethylene (GRIGNARD and TISSIER), A., i, 198. ring formation by means of (ZELINSKY and MOSER), A., i, 670. and their use in the synthesis of acids, alcohols and hydrocarbons (GRIGNARD), A., i, 142. synthesis of acids by means of (ZELINSKY), A., i, 675. synthesis of tertiary alcohols by means of (KONOWALOFF), A., i, 336. syntheses of cyclic tertiary alcohols by means of (ZELINSKY and GUTT), A., i, 70. use of, for the synthesis of ketones (BLAISE), A., i, 164.
- Magnesium, detection and estimation of** :— microchemical test for (POZZI-ESCOR), A., ii, 228, 428. estimation of, in water (GRITTNER), A., ii, 696.
- Magnetic** ore from Debaštica (KOVÁČ), A., ii, 327.
- rotation. See Photochemistry.

- Magnetism** of alloys of iron and silicon (JOUVE), A., ii, 595.
- Magnetite** from German East Africa (BORNHARDT and KÜHN), A., ii, 668.
- Mahwa blossoms.** See *Bassia latifolia*.
- Maize.** See Agricultural Chemistry.
- pith, constituents of (BROWNE and TOLLENS), A., ii, 420.
- β-Malamic acids**, *d*-, *l*-, and *r*-, and their salts (LUTZ), A., i, 596.
- Malic acid** from stems of rhubarb (CASTORO), A., i, 590.
- rotation dispersion of (WINTHER), A., ii, 590.
- uranyl derivative of (ITZIG), A., i, 76.
- β-isoMalic acid** and its salts (COOPS), A., i, 259.
- Malondihydroxamic acid** (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1572.
- and its copper salt (SCHIFF), A., i, 430.
- Malonic acid**, esters, action of diazonium and tetra-azonium chlorides on (FAVREL), A., i, 506.
- ethyl ester and amide, action of, on aminoacetylacetone (KNOEVEN-AGEL and CREMER), A., i, 640.
- condensation of, with carbon tetrachloride (DIMROTH), A., i, 740.
- sodium derivative, action of, on the isomeric tribromoisopentanes (IPATIEFF and SWIDERSKI), A., i, 132.
- sodium salt, action of, on the dibromides $C_nH_{2n}Br_2$ (IPATIEFF), A., i, 588.
- substituted, esters, action of, on diazonium chlorides (FAVREL), A., i, 507.
- Malonic acid**, diamino-, derivatives of (WILLSTÄTTER), A., i, 349.
- bromo- and chloro-, action of ammonia on (LUTZ), A., i, 658.
- di*bromo- and *mono*- and *di*-chloro-, and their metallic and aniline salts (CONRAD and REINBACH), A., i, 529.
- di*bromo- and *di*iodo-, and their methyl esters (WILLSTÄTTER), A., i, 342.
- thiocyanato-, diethyl ester (WHEELER), A., i, 28.
- Malonic dialdehyde**, bromo- (LESPIEAU), A., i, 13.
- Malononitrile**, condensation of, with aromatic aldehydes (WALTER), A., i, 373.
- Malontetranilic acid** and **Malontetra-anthraniilic dianhydride** (v. NIMENTOWSKI), A., i, 614.
- Malt**, isolation of enzymes from (LINTNER), A., i, 847.
- proteid-dissolving enzyme in (EHRICH), A., i, 252.
- analysis of (LING), A., ii, 636.
- kiln-dried, analysis and testing of (PRIOR), A., ii, 479.
- apparatus and method for estimating the extractive matter in (GAWALOWSKI), A., ii, 187.
- Malt liquors**, estimation of arsenic in (RICHARDSON), A., ii, 628.
- Maltase**, yeast, synthetical action of (EMMERLING), A., i, 196.
- Maltose** from the action of ungerminated barley diastase on starch (BAKER), T., 1177; P., 1902, 134.
- magnetic rotation of (PERKIN), T., 190; P., 1901, 256.
- post-mortem* occurrence of, in the liver (LÉPINE and BOULUD), A., ii, 218.
- Manamyrins** (TSCHIRCH and CREMER), A., i, 812.
- Mancopalenic acid**, **Mancopalic acid**, *α*- and *β*-**Mancopalolic acids**, and **Mancopaloresen** (TSCHIRCH and KOCH), A., i, 478.
- Mandelonitrile**, *p*-chloro- (v. WALTHER and RAETZE), A., i, 466.
- α*-**Manelemic acid** and its salts and acetyl and benzoyl derivatives, and *β*-**Manelemic acid** (TSCHIRCH and CREMER), A., i, 812.
- Maneleresen** (TSCHIRCH and CREMER), A., i, 813.
- Manganese**, melting point of (HERAEUS), A., ii, 457.
- Manganese alloys** with aluminium (GUILLET), A., ii, 264.
- Manganese chloride**, compound of, with ethyl alcohol (BOURION), A., i, 334.
- compound of, with iodine trichloride (WEINLAND and SCHLEGELMILCH), A., ii, 315.
- ammonium phosphate, estimation of, volumetrically (DAKIN), A., ii, 628.
- Manganic hydroxide**, action of sulphurous acid on (CARPENTER), T., 10; P., 1901, 212.
- Manganous chloride**, compound of, with pyridine (HAYES), A., i, 492.
- nitrate, compound of, with cupric oxide (MAILHE), A., ii, 262.
- potassium, rubidium and thallous sulphates, anhydrous (MALLET), T., 1549; P., 1902, 198.
- Permanganic acid**, mechanism of the action of hydrogen peroxide on (BACH), A., ii, 81.
- Manganates**, analysis of (HERZ), A., ii, 290.

- Manganese, estimation and separation of:**—
estimation of (DAKIN), A., ii, 533.
estimation of, volumetrically (RAMAGE), A., ii, 50, 108; (IBBOTSON and BREARLEY; DUFFY), A., ii, 107; (v. KNORRE), A., ii, 108.
estimation of, in iron (NOYES and CLAY), A., ii, 430.
separation of, from aluminium, magnesium or zinc by persulphates in acid solution (DITTRICH and HASSEL), A., ii, 693.
- Manganese minerals** from Sardinia (RIMATORI), A., ii, 146.
- Manganiferous nodules** in the boulder-clay of Essex (THRESH), A., ii, 567.
- Manganosphérite**, a new variety of oligonite (BUSZ), A., ii, 146.
- Mangel-wurzels.** See Agricultural Chemistry.
- Mannan** of orchid tubers, digestion of (HÉRISSEY), A., ii, 419.
- Manneotetrose** and **Manninotriose** (TANRET), A., i, 661.
- Mannitol**, magnetic rotation of (PERKIN), T., 188; P., 1901, 256.
influence of, on the vapour pressure of aqueous ammonia solution (PERMAN), T., 484; P., 1901, 261.
solubility of, in water (FINDLAY), T., 1217; P., 1902, 172.
action of, on bismuth nitrate (VANINO and HAUSER), A., i, 8.
reaction for (BETTINK), A., ii, 235.
estimation of, in wine (SCHIDROWITZ), A., ii, 291.
- Mannose**, occurrence of, and test for (STOREI), A., ii, 704.
- Manures**, artificial, methods for the analysis of (KRETSCHMER), A., ii, 105.
See also Agricultural Chemistry.
- Maranta.** See Agricultural Chemistry.
- Marbles** of Carrara, saccharoid, composition of (POLLACCI), A., ii, 268.
of Assynt (TEALL and POLLARD), A., ii, 268.
- Marc**, grape, estimation of tartaric acid in (EHRMANN and LOVAT), A., ii, 480.
- Marcasite** and pyrites, discrimination between, and estimation of, in mixtures (STOKES), A., ii, 87.
- Margarine**, influence of the growth of mould on the chemical composition of (CRAMPTON), A., ii, 709.
detection of (UTZ), A., ii, 709.
detection of, in butter (ANNATO), A., ii, 113; (BREMER), A., ii, 113, 114; (REINSCH), A., ii, 114.
- Margarine**, detection of adulterations with, by the sesame oil reaction (SOLTSIEN), A., ii, 183.
estimation of boric acid in (BEYTHIEN), A., ii, 696.
- Mariupolite**, an extreme member of the elæolite syenites (MOROZEWCZ), A., ii, 668.
- Marrow**, condition of, in chronic arsenical poisoning (MUIR), A., ii, 37.
- Marshite**, composition of (PRIOR), A., ii, 404.
- Mass law.** See Affinity.
- Mastic resin**, solubility of (COFFIGNIER), A., i, 634.
- Matter**, constitution of, and spectroscopy (EGNITIS), A., ii, 437.
- Matte**, analysis of (TRUCHOT), A., ii, 228, 290.
- Meat**, physiological value of (FRENTZEL and SCHREUER), A., ii, 514.
and meat preparations, nutritive value of (PRAUSNITZ), A., ii, 157.
estimation of glycogen and starch in (MAYRHOFER), A., ii, 180.
- Meat extracts**, physiological value of (FRENTZEL and TORIYAMA), A., ii, 514.
analysis of (MICKO), A., ii, 369.
- m-Mecamine** (PERKIN), T., 1027; (GILBODY and PERKIN), T., 1042.
- Melanins** from proteid (SAMUELY), A., i, 731.
- Melanterite** from Falun, Sweden (EDREN), A., ii, 612.
- Melibiose** and its osazone (BAU), A., i, 347.
- Melibiosone** (FISCHER and ARMSTRONG), A., i, 745.
- Melitose** (*melitose*). See Raffinose.
- Melic acid**, magnesium ammonium salts, characterisation of (POZZI-ESCOT), A., ii, 429.
- Melting** of dissociating compounds (LIDBURY), A., ii, 242.
- Melting point** of copper, gold, and silver, application of the phase rule to the (RICHARDS), A., ii, 455.
of gold and silver (BERTHELOT), A., ii, 378.
of manganese (HERAEUS), A., ii, 457.
of alloys of sodium with potassium (KURNAKOFF and PUSHIN), A., ii, 136.
- Melting point curves**, calorimetric determination of the form of pressure (WYCHESLAVTZEFF), A., ii, 381.
- Melting point determinations**, criticisms on (SCHUYTEN), A., ii, 195.
- Membranes**, animal, permeability of (GALEOTTI), A., ii, 377.

- Memorial lectures:** Frankland (ARMSTRONG), P., 1901, 193; Raoult (VANT HOFF), T., 969; P., 1902, 81.
- Mentha Pulegium**, essence of (TETRY), A., ii, 386.
- Menthenes**, $C_{11}H_{20}$, from menthone and tetrahydrocarvone (WALLACH and THÖLKE), A., i, 723.
- Menthol**, magnetic rotation of (PERKIN), T., 309; P., 1902, 29.
- Mentholaetic acid** and its ethyl ester and silver salt (WALLACH and THÖLKE), A., i, 799.
- Menthoglycuronic acid** (BONANNI), A., ii, 160.
and its salts (FROMM and CLEMENS), A., ii, 341.
- Menthone**, synthesis of, and its acetyl derivative, oxime, and semicarbazone (LESER), A., i, 550.
oxidation of (SPERANSKI), A., i, 384.
- Methyl glycols** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 299.
- Menthylcarbinol** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 477.
- Menthylthiocarbimide** (v. BRAUN and RUMPF), A., i, 275.
- Menthylxanthamide** (TSCHUGAEFF), A., i, 630.
- Mercaptal**, $C_{19}H_{14}O_4N_2S_2$, from *p*-nitrophenyl mercaptan and benzaldehyde (BLANKSMA), A., i, 282.
- Mercaptans**, action of, on unsaturated ketones (POSNER), A., i, 296.
- Mercaptans.** See also:—
5-Benzoylthioacridol.
Benzyl mercaptan
5-Benzylthioacridol.
 $\beta\beta$ -Diamylthiolpentane-3-one.
Diamylthiolstilbene.
Dibenzylthiolstilbene.
Diethylthiolstilbene.
Dimethylpyrimidine mercaptans.
 $\alpha\beta$ -Diphenyl- $\alpha\alpha$ -dibenzyl- and - $\alpha\alpha$ -di-phenyl-thiolethane- β -al.
 $\beta\beta$ -Diphenylthiol- γ -methylpentane- δ -one.
Diphenylthiolstilbene.
Diphenyl-1:2:4-triazole mercaptans.
Ethylmercaptohydrocotarnine.
Mercapto-butyltetrol- and -methylol-oxazolines.
- 5-Methylthioacridol.
4-Phenyl-5-aniltriiazolone-3-thiol.
 α -Phenyl- $\gamma\gamma$ -diamylthiolbutane- α -al.
Phenyl mercaptan.
5-Phenyl-10-methylthioacridol.
1-Phenyl-5-methyl-1:2:4-triazole-3-mercaptop.
- Mercaptans.** See:—
5-Phenyl-1-*p*-tolyl-1:2:4-triazole 3-mercaptopan.
 ϵ -Phthaliminoamyl mercaptan.
 $\alpha\gamma\epsilon$ -Tetra-amyl- $\alpha\epsilon$ -diphenylpentane, tetraethio-.
- $\beta\beta\gamma\gamma$ -Tetrabenzylthiolbutane.
 $\beta\beta\epsilon\epsilon$ -Tetrabenzylthiolhexane.
 $\gamma\gamma\zeta\zeta$ -Tetrabenzylthiol- β -methyl-heptane.
 $\beta\beta\delta\delta$ -Tetrabenzylthiolpentane.
4-Tetrahydroxybutyl-1-allyl- and -1-phenyliminoazolyl 2-mercaptopan.
 $\beta\beta\epsilon\epsilon$ -Tetraphenylthiolhexane.
Xylylenethiols.
- Mercapto-butyltetrol-** and -methylol-oxazolines and their silver derivatives (MAQUENNE and ROUX), A., i, 695.
- Mercaptophionic acid**, $C_8H_{12}OS_2$, and its dibenzoic anhydride (WEIGERT), A., i, 11.
- Mercury**, colloidal, electrical preparation of (BILLITZER), A., ii, 454.
catalytic decomposition of hydrogen peroxide by (MCINTOSH), A., ii, 310.
aluminium couple, use of, as a halogen carrier (COHEN and DAKIN), T., 1324; P., 1902, 183.
compounds of, in the liver (SLOWTZOFF), A., ii, 34.
- Dimercur ammonium** bromide, chloride, and nitrite, and mercuric bromide and chloride (RÄY), T., 644; P., 1901, 96; 1902, 85.
- Mercury alloy (amalgam)** with ammonium (MOISSAN), A., ii, 71.
with magnesium, action of, on alcohol, and acetaldehyde (MEUNIER), A., i, 335.
with silver from Sala (SJÖGREN), A., ii, 509.
- Mercury** salts, compounds of, with hydroxylamine (ADAMS), A., ii, 655.
nitrates, decomposition of, by heating (MYERS), A., ii, 503.
potassium and sodium nitrites (ROSENHEIM and OPPENHEIM), A., ii, 21.
red and yellow oxides of, identity of the (KOSTER and STORK), A., ii, 79.
oxychlorides (TARUGI), A., ii, 20.
telluride. See Coloradoite.
- Mercuric** bromide, action of, on alkali thiocyanates (GROSSMANN), A., i, 749.
bromide and chloride, precipitation of, by sulphuric acid (VIARD), A., ii, 606.
ammonium bromide, chloride, and chlorobromide (RÄY), T., 648; P., 1902, 85.

Mercury:—

- Mercuric** chloride, conductivity of, in ethyl chloride, and the influence of temperature on it (EVERSHIM), A., ii, 596.
 iodide, nature of, in solution (KASTLE and REED), A., ii, 324.
 oxide, colloidal (PAAL), A., ii, 503.
 sulphate, compounds of, with hydrogen chloride (BASKERVILLE and WEIL), A., ii, 208.
Mercurous chloride, decomposition of, by dissolved chlorides (RICHARDS and ARCHIBALD), A., ii, 384.
 sulphate, solubility of (DRUCKER), A., ii, 74.
Mercury compounds, aromatic (DIMROTH), A., i, 656, 849; (PESCI), A., i, 849.
 organic (BIILMANN), A., i, 665.
 with acid amides and imides (LEY and SCHAEFER), A., i, 357.
 with coumarone and indene (BOES), A., i, 151.
Mercury acetylides (BURKARD and TRAVERS), T., 1271; P., 1902, 183.
 cyanide, auto-reduction of (MARSH and STRUTHERS), P., 1902, 249.
Mercuric salts, compounds of, with ethylenediamine, diethylethylenediamine, and piperazine (CHEMISCHE FABRIK AUF AKTIEN), A., i, 348.
 thiocyanate, action of potassium cyanide on (ITZIG), A., i, 208.
Mercuribenzoic acid, chloro- (DIMROTH), A., i, 851.
Mercuricineol iodide (SAND and SINGER), A., i, 851.
p-**Mercuriphenyltrimethylammonium** iodide and its iodo-derivative (DIMROTH), A., i, 656; (PESCI), A., i, 849.
o-**Mercuryphenol** (DIMROTH), A., i, 849.
Mercury, detection and estimation of:—
 detection of, toxicologically (VITALI), A., ii, 475.
 detection of, in urine (LAQUEUR), A., ii, 359.
 estimation of, electrolytically (BINDSCHEDLER), A., ii, 532.
 estimation of, gravimetrically and volumetrically (COHN), A., ii, 50; (RUPP and KRAUSS), A., ii, 475.
 estimation of, in presence of silver (RUPP and KRAUSS), A., ii, 475.
 estimation of, in antiseptic solutions containing mercuric chloride, iodide, or cyanide (MEILLÈRE), A., ii, 49.
 estimation of, in urine (BARDACH), A., ii, 532.

Mercury, estimation of:—

- estimation of, colorimetrically, in urine (ESCHBAUM), A., ii, 476.
Mercury ores, Dalmatian, assay of (EHRMANN and SLAUS-KANTSCHIEDER), A., ii, 359.
Merimine and its salts (GABRIEL and COLMAN), A., i, 842.
allo-**Meroquinine** and its salts (SKRAUP and ZWERGER), A., i, 725.
Mesityl- β -anil, α -nitro- (HARRIES), A., i, 185.
Mesitylene, influence of, on the rotation of ethyl tartrate (PATTERSON), T., 1097; P., 1902, 133.
Mesitylene, triamino-, and its triacetyl derivative (WENZEL), A., i, 190.
Mesitylglyoximeperoxide nitrite (HARRIES), A., i, 185.
Mesityl methyl ketone, oxidation of (VAN SCHERPENZEEL), A., i, 103.
Mesitylnitrimine and *iso***Mesitylnitrime** (HARRIES), A., i, 184.
Mesityl oxide (*methyl isobutetyl ketone*; *isopropylideneacetone*) (TITHERLEY), T., 1526; P., 1902, 187.
 oxime of, action of nitrous and nitric acids on (HARRIES), A., i, 184.
Mesityl pentadecyl ketone (KLAGES), A., i, 613.
Mesoporphyrin, comparison of, with phylloporphyrin (MARCHLEWSKI), A., i, 636.
Mesoxalic semi-aldehyde (FENTON and RYFFEL), T., 426; P., 1902, 54.
Mesoxamide, oxime of, derivatives of (WHITELEY), P., 1902, 212.
Metabolic disorders, elimination of carbon dioxide in certain (HALL), A., ii, 679.
Metabolism, experimental abnormality of (HILDEBRANDT), A., ii, 411.
 and diet (GOODBODY, BARDSWELL, and CHAPMAN), A., ii, 513.
 blood analysis in relation to (ASCOLI), A., ii, 33.
 influence of abundant protein food on (FRANK and TROMMSDORFF), A., ii, 615.
 influence of muscular work on (KAUP), A., ii, 615.
 carbohydrate (CREMER), A., ii, 154.
 fat, relation of lipase to (LOEVENHART), A., ii, 217.
 nitrogenous, *rôle* of crude fibre in (USTJANTZEW), A., ii, 514.
 during nervous excitement (BENDICT), A., ii, 218.
 in a case of Bright's disease (BUTLER and FRENCH), A., ii, 466.
 protein (GRUBER), A., ii, 156.

- Metabolism**, protein, low (HARLAY and GOODBODY), A., ii, 466.
 and alcohol (NEUMANN), A., ii, 154 ;
 (ROSEMANN), A., ii, 274.
 influence of fat and carbohydrate
 on (TALLQVIST), A., ii, 273.
 and subcutaneous injections of
 dextrose (SCOTT), A., ii, 337.
 in inanition (VOIT), A., ii, 33.
 in fever (WEBER), A., ii, 277.
 during curare poisoning (FRANK and
 VOIT), A., ii, 101.
 in dogs, influence of sodium nitrate on
 (ROST), A., ii, 33.
 in horses (PFEIFFER ; ZUNTZ and
 HAGEMANN), A., ii, 272.
 in man (SPIEGEL), A., ii, 93.
 in man with special reference to protein
 requirements (SIVÉN), A., ii, 513.
 human, rôle of purine derivatives in
 (BURIAN and SCHUR), A., ii, 33 ;
 (LOEWI), A., ii, 157.
 in acute gout (VOGEL), A., ii, 160.
 in lymphatic leucæmia (HENDERSON
 and EDWARDS), A., ii, 277.
 in phloridzin diabetes (LEWIN), A.,
 ii, 272 ; (MAYER), A., ii, 520.
 of phosphates (FOLIN and SHAFFER),
 A., ii, 337.
 of phosphorus, calcium, and magnesium
 in Herbivora (TANGL), A., ii, 272.
Metabolism experiments, estimation of
 iron in (NEUMANN), A., ii, 176, 583.
 β -**Metacopaivic acid** (TSCHIRCH and
 KETO), A., i, 167.
Metaformaldehyde. See Trioxy-
 methylene.
Metakoenenite (RINNE), A., ii, 612.
Metallic articles, antique, composition
 of (BERTHELOT), A., ii, 261.
 chlorates, hydrates of (MEUSSER), A.,
 ii, 392.
 cyanides, constitution of (WADE), T.,
 1596 ; P., 1902, 65 ; (MARSH), P.,
 1902, 248.
 haloids, double (WELLS), A., ii, 11.
 hydroxides, interpretation of certain
 modifications of (HANTZSCH), A.,
 ii, 396.
 nature of alkaline solutions of
 (HANTZSCH), A., ii, 395.
 heavy, solubility of, in sodium
 hydroxide (KÜDENHAUER), A.,
 ii, 396.
 and sulphides, dialysis experiments
 with (HERZ), A., ii, 608.
 nitrates, absorption spectra of (HART-
 LEY), T., 556 ; P., 1902, 67, 239.
 oxides, action of carbon dioxide and
 alkali salts on (KÜHLING), A.,
 ii, 79 ; (SACKUR ; BODLÄNDER), A.,
 ii, 204.
- "**Metallic** salts, physical properties of
 solutions of, in water (BILTZ and
 MEYER), A., ii, 310.
 electro-affinity as a basis for the
 systematisation of (LOCKE), A.,
 ii, 240.
 molecular weight of, in acetone
 (JONES), A., ii, 196.
 double, solubility and decomposition
 of, in water (RIMBACH), A., ii, 306.
 molten, action of aluminium on
 (FORMENTI and LEVI), A., ii, 141.
 behaviour of solutions of, towards
 copper and towards iron in presence
 of copper (OST), A., ii, 657, 658.
 action of cupric hydroxide on
 (MAILHE), A., ii, 140, 261.
 action of, on gold chloride (OECHSNER
 DE CONINCK), A., ii, 664.
 action of, on Protista (GOLDBERGER),
 A., ii, 675.
 action of sodium thiosulphate on
 (FAKTO), A., ii, 25.
 solutions, action of bismuth oxide on
 (ALOY), A., ii, 360.
 sulphates, compounds of, with hydro-
 gen chloride (BASKERVILLE), A.,
 ii, 208.
 sulphides, electrical resistance of (GUIN-
 CHANT), A., ii, 486.
 thiocyanates, action of, on carbonyl
 chloride (DIXON), P., 1902, 240.
 tools, Egyptian (COLSON), A., ii, 398.
etals, colloidal, electrical preparation
 of (BILLITZER), A., ii, 454.
 banded flame spectra of (HARTLEY and
 RAMAGE), A., ii, 189.
 ultra-violet spark spectra of (ADENEY),
 A., ii, 57.
 E.M.F. of, in cyanide solutions
 (CHRISTY), A., ii, 193, 440.
 conductivity and atomic heat of
 (STREINTZ), A., ii, 595.
 potential differences of, in vapours and
 in some solid electrolytes (V. HAS-
 LINGER), A., ii, 118.
 velocity of solution of (ERICSON-AURIËN
 and PALMAER), A., ii, 64.
 distillation of, and the physical pro-
 perties of distilled metals (KAHL-
 BAUM, ROTH, and SIEDLER), A.,
 ii, 259.
 action of fused sodium dioxide on
 (DUDLEY), A., ii, 564.
 finely divided, action of, in the form-
 ation of amines from nitro-com-
 pounds (SABATIER and SEND-
 ERENS), A., i, 701.
 action of, in the hydrogenation of
 the oxides of carbon (SABATIER
 and SENDERENS), A., i, 333 ;
 ii, 317.

- Metals**, finely divided, action of, in the hydrogenation of unsaturated hydrocarbons (SABATIER and SENDERENS), A., i, 525, 701.
 reduced, use of, in the hydrogenation of nitrogen oxides (SABATIER and SENDERENS), A., ii, 605.
 estimation of, in presence of organic matter (MEILLERE), A., ii, 288.
- Metanilic acid**, *d*/iodo-(KALLE & Co.), A., i, 716.
- Metaphosphoric acid**. See under Phosphorus.
- Metastannic acid**. See under Tin.
- Metathorium oxychloride**. See under Thorium.
- Meteoric irons** (COHEN), A., ii, 463.
 from Guatemala (MEUNIER), A., ii, 323.
 from Surprise Springs, California (COHEN), A., ii, 613.
 action of copper sulphate on (FARRINGTON), A., ii, 569.
- Meteoric stone** from Zavid, Bosnia (BERWERTH), A., ii, 570.
- Meteorite** from Adinire, Kansas (MERRILL), A., ii, 569.
 from Bacubirito, Mexico (WARD), A., ii, 669.
 from Casas Grandes (TASSIN), A., ii, 670.
 stony, which fell at Felix, Alabama (MERRILL), A., ii, 92.
 from Hopewell Mounds, Ohio (FARRINGTON), A., ii, 671.
 from Long Island, Kansas (FARRINGTON), A., ii, 670.
 from Los Reyes, Mexico (FARRINGTON), A., ii, 671.
 from Kenton Co. (FARRINGTON), A., ii, 671.
 from Niagara (PRESTON), A., ii, 670.
 from South Australia (GOYDER), A., ii, 32.
 from Veramin, Persia (WARD), A., ii, 148.
- Methane**, formation of (MOISSAN), A., i, 253.
 new synthesis of (SABATIER and SENDERENS), A., i, 333 ; ii, 317.
 preparation of, and slow oxidation of, at low temperatures (BONE and WHEELER), T., 535 ; P., 1902, 51.
 heat of combustion and of dissociation of (MIXTER), A., ii, 60.
- Methane**, nitro-, condensation of, with aromatic aldehydes (BOUVEAULT and WAHL), A., i, 682.
- Methanesulphonic acid** (DELÉPINE), A., i, 183.
- Methanesulphon-amide** and -anilide (DUGUET), A., i, 429.
- Methenyl compounds**, mixed (ERRERA), A., i, 117.
- Methenylbisfluorene** (?) (WISLICENUS and DENSCHE), A., i, 291.
- Methenyldiantranilacetic acid** and anhydride (v. NIEMENTOWSKI), A., i, 614.
- 1¹-Metho-1¹-butenylbenzene**. See β -Phenyl- β -amylene.
- Methoethenylbenzene**. See β -Allylbenzene.
- 1¹-Metho-1¹-propenylbenzene**. See β -Phenyl- β -butylene.
- 1¹-Metho-6⁶-propenyl-1:3:4-trimethylbenzene**. See β - ψ -Cumyl- β -butylene.
- Methoxylaminoazobenzene** (WIELEZYŃSKI), A., i, 510.
- Methodoxides**, basic, of salts of weak acids (WISLICENUS and STOEBER), A., i, 202.
- Methoxyanilinophosphoric acid**, barium salt (CAVEN), T., 1374.
- Methoxyanilinophosphoryl chloride** (CAVEN), T., 1373.
- 4-Methoxyazoxybenzene**, 3:5-dibromo- (JACKSON and FISKE), A., i, 362.
- o-Methoxybenzaldehyde** (v. BAEYER and VILLIGER), A., i, 770.
- Methoxybenzene**, dibromoamino- (JACKSON and FISKE), A., i, 362.
- Methoxybenzophenones**, 3- and 4- (ULLMANN and GOLDEBERG), A., i, 792.
- p-Methoxybenzyltetrahydroquininaline** and its salts (BIALON), A., i, 828.
- 4-Methoxyisocarbostyrii** (GABRIEL and COLMAN), A., i, 642.
- 7-Methoxychromone** and its -2-carboxylic acid (v. KOSTANECKI, DE RUIJTER DE WILDT, and FEINSTEIN), A., i, 304.
- p-Methoxydibenzylideneacetone**. See Benzylidene-p-anisylideneacetone.
- Methoxydihydroanthracene**, bromonitro-, nitro-, and isonitro- (MEISENHEIMER), A., i, 796.
- 2-Methoxy-4:6-dimethylpyrimidine** and its compound with mercuric chloride (ANGERSTEIN), A., i, 123.
- γ -Methoxy- β -diphenyl- Δ -crotonolactone** (THIELE and STRAUS), A., i, 155.
- 3'-Methoxy-4'-ethoxybenzoyl-2:4-diethoxyacetophenone** (v. KOSTANECKI and RÓŻYCKI), A., i, 105.
- 3'-Methoxy-4'-ethoxybenzoyl-2:4:6-trimethoxyethylacetophenone** (v. KOSTANECKI and RÓŻYCKI), A., i, 105.
- 4-Methoxy-4'-ethoxyquinol-1-nitrolic acid**, 3:5-dinitro-, potassium salt (MEISENHEIMER), A., i, 797.
- α -Methoxy-p-ethylphenol**, bromo-derivatives of (ZINCKE, SIEBERT, and REINBACH), A., i, 607.

- p-Methoxy-5-ethyl-2-stilbazole** and its salts (BIALON), A., i, 829.
- 2-Methoxyfluorenone** (WERNER), A., i, 629.
- p-Methoxyhydratopaldehyde** and its oxime (BOUGAULT), A., i, 452.
- p-Methoxyhydratropic acid** and its salts and isomerides (BOUGAULT), A., i, 453.
- 4-Methoxy-1- α -hydroxypropylbenzene**, and its acetate and phenylurethane (KLAGES), A., i, 609.
- Methoxyl**, estimation of (MOLL VAN CHARANTE), A., ii, 434.
- groups, modification of Zeisel's method for the estimation of (HEWITT and MOORE), T., 318; P., 1902, 8.
- estimation of, in sulphur compounds (KAUFLER), A., ii, 291.
- 4-Methoxy-2-methyl- and -3-phenylbenzoxazole** (HENRICH and RHODIUS), A., i, 448.
- 6-Methoxy-3-methylpyridazine** (PÖPENBERG), A., i, 61.
- 2:3-Methoxynaphthol**, and its acyl derivatives and the action of phosgene on (ENGELHARDT), A., i, 674.
- p-Methoxy- ω -nitrostyrene** (BOUVEAULT and WAHL), A., i, 683.
- Methoxyphenanthraquinones**, 2- and 3- (WERNER), A., i, 627.
- 2-Methoxyphenanthrene** and its -9-carboxylic acid (PSCHORR and SEYDEL), A., i, 97.
- 2-Methoxyphenanthrene**, bromo- (PSCHORR and KLEIN), A., i, 97.
- 3-Methoxyphenanthrene**, and its dibromo-derivative (PSCHORR and KLEIN), A., i, 97.
- 3-Methoxyphenol**, 2-amino-, and its hydrochloride, picrate, and triacetyl derivative, and *p*-amino- and *p*-nitroso- (HENRICH and RHODIUS), A., i, 447.
- p-Methoxyphenylacetaldoxime** (BOUVEAULT and WAHL), A., i, 683.
- β -3-Methoxy- α -phenyl-6-amino- and -6-nitro-cinnamic acid** (PSCHORR and SEYDEL), A., i, 97.
- 7-Methoxy-2-phenyl-1:4-benzopyranol** (BÜLOW and V. SICHERER), A., i, 113.
- 7-Methoxy-2-phenyl-4-benzylidene-1:4-benzopyranol** (BÜLOW and GROTONSKY), A., i, 484.
- 7-(or 5)-Methoxy-2-phenyl-4-benzylidene-5-(or 7)-methyl-1:4-benzopyranol** (BÜLOW and GROTONSKY), A., i, 555.
- o*-Methoxyphenyl ethyl ketone** (FISCHER and SLIMMER), A., i, 622.
- 6-Methoxy-3-phenyl-5-methylpyridazine** (OPPENHEIM), A., i, 187.
- 11-Methoxy-1-phenylnaphthaphenazonium** salts (KEHRMANN, BECKER, and CAPATINA), A., i, 571.
- 2-p-Methoxy-6-phenylstilbazole** and its salts (OLLENDORFF), A., i, 828.
- Methoxyphosphoryl** chloride (CAVEN), T., 1373.
- α -Methoxyphthalic acid**, methyl ester (ONNERTZ), A., i, 101.
- 5-Methoxy-1-isopropylbenzoquinone**, 3:6-dichloro- (BÖTERS), A., i, 474.
- p-Methoxysalicylic acid** (PERKIN), T., 231, 1021; P., 1900, 106; 1901, 258; 1902, 147; (GILBODY and PERKIN), T., 1059; P., 1899, 28; 1900, 106.
- p-Methoxy-2-stilbazole** and its amino-derivative and salts (BIALON), A., i, 828.
- Methoxysulphinic acid**, ammonium salt (GOLDBERG and ZIMMERMANN), A., i, 738.
- Methoxy-*p*-toluidinophosphoric acid**, barium and potassium salts (CAVEN), T., 1374.
- Methoxy-*p*-toluidinophosphoryl** chloride (CAVEN), T., 1374.
- p-Methoxytriphenylcarbinol** and methyl ether and its ether and *dibromo-* (BISTRZYCKI and HERBST), A., i, 777.
- p-Methoxytriphenylmethane** (BISTRZYCKI and HERBST), A., i, 777.
- Methyl**, displacement of benzyl by, in substituted nitrogen compounds (JONES), P., 1901, 205.
- Herzig and Meyer's method of estimating (BUSCH), A., i, 501.
- Methyl alcohol**, properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTNEY), T., 740; P., 1902, 105.
- properties of mixtures of, with water (YOUNG and FORTNEY), T., 718; P., 1902, 105.
- action of, on its sodium derivative (GUERBET), A., i, 583.
- detection of, in ethyl alcohol (HABERMANN and OESTERREICHER), A., ii, 110; (SCHOORL), A., ii, 703.
- detection and estimation of, in commercial formaldehyde (DUYK), A., ii, 110.
- Methyl** chloride, action of potassium hydride on (MOISSAN), A., i, 253.
- difluoroethyl* ether (SWARTS), A., i, 130.
- phenyl- and *p*-tolyl-iminodithiocarbonate (DELEPINE), A., i, 702.
- Methylacetylmethylheptenone** (LESER), A., i, 262.
- 10-Methylacridone** (PICTET and PATRY), A., i, 644; (DECKER), A., i, 691.

- Methylalal**, effect of, on some fresh-water Algae (BOUILHAC), A., ii, 40.
- p-Methylallylbenzene** and its nitroso-chloride (KLAGES), A., i, 612.
- Methylallyltetrahydroquinolinium iodide** (WEDEKIND), A., i, 234.
- Methylamine**, action of, on cumin-aldehyde and furfuraldehyde (SCHWABBAUER), A., i, 230.
- compounds of, with silver haloids (WUTH), A., i, 594.
- Methylamino-2:6-azobenzene**, action of, on benzaldehyde (PERUCCHETTI), A., i, 330.
- 2-Methylaminobenzyl-p-nitroaniline**, 5-nitro-, and its diacetyl derivative (MEYER and STILLICH), A., i, 320.
- o-Methylaminodiphenylamine** and its hydrochloride (FISCHER, RIGAUD, and KOPP), A., i, 188.
- Methylaniline**, oxidation of (BAMBERGER and VUK), A., i, 275.
- Methylaniline**, 2:4- and 4:2-bromonitro-, 2:6:4- and 4:6:2-dibromonitro-, and o- and p-nitro- (BLANKSMA), A., i, 600.
- tetra- and penta-nitro-1-nitro- (BLANKSMA), A., i, 442.
- Methylantranilic acid** and its methyl ester and nitroso-derivative (SCHULTZ and FLACHSLÄNDER), A., i, 778.
- methyl ester (SCHIMMEL & Co.), A., i, 96.
- Methylantranilic acid**, ω -cyano-, esters (BADISCHE ANILIN- & SODA-FABRIK), A., i, 451, 718.
- and their acetyl derivatives (ERDMANN), A., i, 290.
- Methylarsenic acid**, disodium salt, composition and estimation of (ADRIAN and TRILLAT), A., ii, 588.
- estimation, volumetrically (FALIERES), A., ii, 544.
- disodium salt (*arrhenial*), estimation of, alkalimetrically (ASTRUC), A., ii, 370.
- Methylarsine** and its oxide (PALMER and DEHN), A., i, 86.
- Methylazobenzene**, nitroamino-derivatives (MEHNER), A., i, 577.
- Methylazotates**, metallic (HANTZSCH and LEHMANN), A., i, 325.
- m-Methylbenzyl-p-amino-m-thio-xylenol** (SCHULTZ and TICHOMIROFF), A., i, 402.
- 1-Methylbenziminoazole**, 3-methiodide of (FISCHER and RIGAUD), A., i, 399.
- 4-Methylbenzylazoimide**, decomposition of, by acids (CURTIUS and DARAPSKY), A., i, 844.
- p-Methylbenzylidene-hydrazine** and -benzylidenehydrazine (CURTIUS and FRANZEN), A., i, 832.
- Methyl-bromo- and -chloro-ethylamines** and their salts (MARCKWALD and FROBENIUS), A., i, 23.
- Methyl dibromo-xyloquinol isobutyrate**, and its bromo- and acetyl derivatives (AUWERS and SIGEL), A., i, 217.
- Methyl isobut enyl ketone**. See Mesityl oxide.
- 1-Methyl-3-tert.-butylbenzene**, 2-iodo- (KLAGES and STORP), A., i, 671.
- β -Methyl- β -butylene**. See Amylene.
- δ -Methyl- α -isobutylhexoic acid**. See Undecic acid.
- Methyl tert. butyl ketone**. See Pinacolin.
- Methylcamphocarboxylic acid**, methyl and ethyl esters, crystallography of (MINGUIN), A., i, 658.
- Methyl-camphorimide**, and -camphor-nitrile, crystallography of (MINGUIN), A., i, 658.
- Methylcarboxyaconitic acid** (*butylene-tetra carboxylic acid*), ethyl ester (RUHEMANN), T., 1213; P., 1902, 181.
- Methylchloroethylbenzamide** (MARCKWALD and FROBENIUS), A., i, 23.
- Methyltrichloroquinodichloride**, dichloro- (BLITZ and KAMMANN), A., i, 162.
- 1-Methyl-l-coniine** and its salts (AHRENS), A., i, 391.
- γ -Methyldeoxybenzoin** and its semicarbazone (BLAISE), A., i, 164.
- Methylidihydrobetaine** (WILLSTÄTTER), A., i, 268.
- N-Methylidihydroacridine** (PICTET and PATRY), A., i, 644; (DECKER), A., i, 691.
- γ -Methyldihydro-2-stilbazole** and its salts (DIERIG), A., i, 827.
- Methylene**, new compounds of (DESCUDÉ), A., i, 149, 339, 451.
- derivatives, condensation products of, with aromatic nitroso-compounds (SACHS), A., i, 118.
- ethylene disulphide hydrochloride, imino- (WHEELER and MERRIAM), A., i, 538.
- diodide, action of, on aryl- and naphthyl-amines (SENIER and GOODWIN), T., 280; P., 1902, 12.
- dithiocarbonate phenylhydrazone (BUSCH and LINGENBRINK), A., i, 573.
- ethylene- α -alanine** (SCHIFF), A., i, 85.
- ethyleneaminoacetonitrile** (KLAGES), A., i, 355.
- ethyleneaniline** and its homologues, new bases from (ERDMANN), A., i, 91.

- Methylenebisacetylacetone** (RABE and ELZE), A., i, 711.
- Methylenebisaniline**, oxidation of (BAMBERGER and TSCHIRNER), A., i, 276.
- Methylenebisanthranoic acid** and its salts and diacetyl derivative (HELLER and FIESSELMANN), A., i, 779.
- Methylenebisdimethylphloroglucinol** (BOEIM), A., i, 39.
- 4-Methylenebis-3:5-dimethylpyrazole** (RABE and ELZE), A., i, 711.
- 4-Methylenebis-3-methyl- and -phenyl-5-pyrazolone** (RABE and ELZE), A., i, 710.
- Methylenecitric acid** (STERNBERG), A., i, 259; (CHEMISCHE FABRIK AUF AKTIEN), A., i, 424.
- Methylenediamine**, attempts to prepare derivatives of (KUDERNATSCH), A., i, 427.
- Methylenedi-*p*-hydrazotoluene** (RASSOW and RÜLKE), A., i, 404.
- Methylenedi-2-hydroxy-3-naphthoic acid**, action of diazonium chloride on (STROHBACH), A., i, 161.
- Methylenedimethylsuccinic acid** (BONE and SPRANKLING), T., 51; P., 1901, 243.
- 2:3-Methylenedioxy-1-*iso*butylenebenzene** (MÜSCHINSKY), A., i, 621.
- Methylenedioxypyrenylmethanebiss-2:5-dimethylpyrrole-3-carboxylic acid**, ethyl ester (FEIST, WIDMER, and SAKOWITSCH), A., i, 490.
- Methylenedipiperidine** and its hydriodide and aurichloride (SCHMIDT; KÖHLER), A., i, 487.
- Methylenedisuccinic acid**. See Pentane- $\alpha\beta\delta\epsilon$ -tetracarboxylic acid.
- 3:2-Methylenelimino-benzyl- and -benzylidene-*p*-nitroaniline**, 5-nitro- (MEYER and STILLICH), A., i, 320.
- Methyleneoxide** diacetate (DESCUDÉ), A., i, 738.
- γ -Methyl- γ -ethyliaconic acid** and its barium salt (STOBBE, STRIGEL, and MEYER), A., i, 462.
- Methylethylaminoacetic acid**, methyl ester and copper salt (WILLSTÄTTER), A., i, 268.
- 6-Methyl-1-ethylbenzimidazolet**, 3-ethiodide of (FISCHER, RIGAUD, and BECKER), A., i, 400.
- Methylethylbutylcarbinol**. See Octyl alcohol.
- 5-Methyl-3-ethyl- $\Delta^{1:5}$ -dihydrophenylacetic acid** and its ethyl ester and amide (WALLACH and BÖTTICHER), A., i, 799.
- N-Methylethyleneimine** and its salts (MARCKWALD and FROBENIUS), A., i, 23.
- 1-Methyl-3-ethylcyclohexane**, and 3-bromo-, optically active (ZELINSKY), A., i, 666.
- 3-Methyl-5-ethyl- Δ^2 -cyclohexenone** (WALLACH and BÖTTICHER), A., i, 799.
- γ -Methyl- γ -ethylidenedepyrotartaric acid** and its salts (STOBBE, STRIGEL, and MEYER), A., i, 461.
- 2-Methyl-1-ethylindole**, 5-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- γ -Methyl- γ -ethylitaconic acid** and its salts and esters (STOBBE, STRIGEL, and MEYER), A., i, 461.
- Methyl ethyl ketone**, condensation of, with benzaldehyde (HARRIES and MÜLLER), A., i, 295.
- condensation of, with ethyl succinate (STOBBE, STRIGEL, and MEYER), A., i, 461.
- γ -Methyl- γ -ethylparaconic acid**, β -bromo-(STOBBE, STRIGEL, and MEYER), A., i, 462.
- 1-Methyl-3-ethylcyclopentane**, optically active (ZELINSKY), A., i, 665.
- 1-Methyl-3-ethylcyclopentanol-3** (ZELINSKY and GUTT), A., i, 70.
- Methylethylphenacylthetine salts** (POPE and NEVILLE), T., 1558; P., 1902, 199.
- 3-Methyl-4-ethylpyrazolone** (LOCQUIN), A., i, 705.
- Methylethylpyridazone** (POPPENBERG), A., i, 61.
- 2-Methyl-5-ethylpyridine**, action of anisaldehyde on (BIALON), A., i, 828.
- 4-Methyl-3-ethylpyridine**, condensation of, with formaldehyde (KOENIGS), A., i, 394.
- Methylethyluracils**, 1:3-and 3:1, 5-nitro- (BEBREND and THURM), A., i, 833.
- Methylethylxanthines** (BOEHRINGER & SÖHNE), A., i, 505.
- Methylisoeugenol**, oxidation of (BOUGAULT), A., i, 453.
- Methylfenchene** (ZELINSKY and ZELIKOFF), A., i, 3.
- Methylfluorene** (WISLICENUS and DENSCHE), A., i, 291.
- Methylfluoreneoxalic acid**, ethyl ester (WISLICENUS and DENSCHE), A., i, 291.
- Methylglyceraldehyde** and its acetal (WOHL and FRANK), A., i, 532.
- n-Methylgrantanine**, preparation of, from *n*-methylgrantanine (PICCININI), A., i, 488.
- Methyl group**, influence of, on ring formation (GILBODY and SPRANKLING), T., 787; P., 1900, 224.
- influence of the, on the toxicity of organo-metallic compounds (LAFFONT), A., ii, 620.

- Methylheptenol.** See Octenyl alcohol.
- Methylheptenone,** constitution of (HARRIES), A., i, 345.
- and its oxime and semicarbazone (WALLACH, MEYER, and MITTELSTENSCHEID), A., i, 81.
- Methylheptenone**, bromo-, and its oxime, semicarbazone and benzylidene compound (WALLACH and BLEMBEL), A., i, 80.
- Methylheptenylamine** and its derivatives (WALLACH), A., i, 81.
- Methyl- β -heptynylecarbinol.** See Nonyl alcohol.
- Methylheptylcarbinol.** See Nonyl alcohol.
- δ -Methyl- γ -heptylene** (*1-methylpropyl-2-ethylheptylene*). See Octylene.
- Methyl heptyl ketone** and its carbazone from oil of rue (POWER and LEES), T., 1588; P., 1902, 193.
- reduction of (MANNICH), A., i, 592.
- p*-Methylhexahydrobenzylaniline** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 90.
- Methylhexahydrocinchomeronic acid**, diethyl ester and its methiodide (SKRAUP and PICCOLI), A., i, 565.
- 1-Methylcyclohexane, 3-iodo-** (ZELINSKY), A., i, 598.
- 1-Methylcyclohexane-3-acetic** and **-3-malonic acids** (ZELINSKY and ALEXANDROFF), A., i, 74.
- 2-Methylcyclohexanecarboxylic acid** (*hexahydro-o-toluic acid*) and its isomeride, and their amides (GOLD-SCHMIDT), A., i, 541.
- 1-Methylcyclohexane-3-carboxylic acid**, synthesis of (ZELINSKY), A., i, 675.
- 1-Methylcyclohexane 3-ol-3-acetic acid**, ethyl ester (TÉTRY), A., i, 584; (ZELINSKY and GUTT), A., i, 585.
- 1-Methylcyclohexane-3-ol-3-propionic** and *-isobutyric acids*, ethyl esters, and their condensation with oxalic acid (ZELINSKY and GUTT), A., i, 585.
- 1-Methylcyclohexane-3-one**, condensation of, with ethyl α -bromopropionate and with α -bromoisoobutyrate (ZELINSKY and GUTT), A., i, 585.
- and its bromo-derivative (ZELINSKY and ROSCHDESTWENSKY), A., i, 674.
- B-Methylcyclohexanone**, oxidation of (SPERANSKI), A., i, 384.
- derivatives of (TÉTRY), A., i, 469.
- compound of, with benzylideneacetophenone (STOBBE), A., i, 472.
- Methylcyclohexanose** (ZELINSKY and ROSCHDESTWENSKY), A., i, 674.
- Methylcyclohexene** (*tetrahydrotoluene*), and its nitrosoate and nitrolepiperidine (WALLACH), A., i, 750; (WALLACH and FRANKE), A., i, 806.
- 1-Methylcyclohexene**, active isomerides of (ZELINSKY), A., i, 598.
- 1-Methylcyclo- Δ^2 -hexene-3-acetic acid** and its ethyl ester (TÉTRY), A., i, 584.
- β -Methyl- $\beta\epsilon$ -hexenoic acid.** See $\gamma\delta$ -isoo-Heptenoic acid.
- δ -Methyl- γ -hexenoic acid.** See Heptenoic acid.
- Methylcyclohexenone** and its oxime (WALLACH), A., i, 750.
- Methylcyclohexenonehydroxylamino-oxime**, oxidation of (HARRIES), A., i, 361.
- δ -Methylhexoic acid.** See Heptoic acid.
- Methyl hexyl ketone**, specific heat and heat of vaporisation of (LUGININ), A., ii, 548.
- Methylhexylpyruvic acid**, ethyl ester, and its oxime (BOUVEAULT and LOCQUIN), A., i, 704.
- Methylcyclohexylthiocarbimide** (V. BRAUN and RUMPF), A., i, 275.
- d-Methylhydrindone** and its oximes, hydrazones and semicarbazones (KRIPPING), P., 1902, 34.
- Methylhydroxycarbamide** (FRANCESCONI and PARROZZANI), A., i, 140.
- Methyliminodithiocarbonic acid**, methyl ethyl and benzyl methyl esters, and their additive salts (DÉLÉPINE), A., i, 597.
- Methylindenes** from coal tar (BOES), A., i, 534.
- 2-Methylindole**, 5-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- 11-Methylindophenazine** and **10-Methyl- ψ -indophenazine** (BURACZEWSKI and MARCHLEWSKI), A., i, 120.
- N-Methylindoxylic acid**, methyl esters (VÖRÄNDER and MUHM), A., i, 452.
- Methylionones**, α - and β - (HAARMANN & REIMER), A., i, 471.
- Methyl-lactoside** and its hepta-acetyl derivative (DITMAR), A., i, 532.
- Methyl-lupuline** and its methiodide (WILLSTÄTTER and FOURNEAU), A., i, 558.
- Methylmalonamic acid**, ethyl ester (FISCHER and DILTHEY), A., i, 270.
- γ -Methyl- α -methyleneoctopentane** (SPERANSKI), A., i, 341.
- Methyl β -methylhexyl ketone** and its oxime and semicarbazone (LEES), T., 1595; P., 1902, 193.
- β -Methylmorphimethine** and its methiodide and benzoate (KNORR and SMILES), A., i, 817.

- γ -Methylmorphimethine** and its benzoate (KNORR and HAWTHORNE), A., i, 818.
 δ -Methylmorphimethine and its methiodide and benzoate (KNORR and HAWTHORNE), A., i, 818.
- Methylnaphthionic acids.** See Methyl-naphthylaminesulphonic acids.
- 1-Methylnaphthylamine-6-sulphonic acid** (FUSSGANGER), A., i, 280.
- Methylnaphthylamine-4-and-6-sulphonic acids, 1- and 2-** (BÄDISCHE ANILIN- & SODA-FABRIK), A., i, 91.
- Methylnataloe-emodin** (LÉGER), A., i, 549.
- β -Methyl- β -nonene- $\zeta\delta$ -dione.** See Acetyl-methylheptenone.
- Methylnonylcarbinol.** See Undecyl alcohol.
- Methyl nonyl ketone** and its semicarbazone from oil of rue (POWER and LEES), T., 1588; P., 1902, 193.
 reduction of (MANNICH), A., i, 592.
 derivatives of (CARETTE), A., i, 346.
- ζ -Methyl- α -octene- $\epsilon\eta$ -dione** (LESER), A., i, 262.
- Methyl- β -octinylcarbinol.** See Decinyl alcohol.
- 2- α -Methylolethyl-3-methylquinoline** and its salts (KOENIGS and BISCH-KOPF), A., i, 179.
- Methyloxalacetanil** and its phenylhydrazone and bromo-derivative (FICHTER and PREISWERK), A., i, 443.
- Methyloxazolidines, 2- and 3-** (KNORR and MATTHES), A., i, 57.
- Methylparaconic acid, trichloro-**, substitution of hydrogen for chlorine in (MYERS), A., i, 590.
- β -Methylpentane.** See *iso*Hexane.
- Methylcyclopentane,** synthesis of (ZELINSKY and MOSER), A., i, 670.
- 1-Methylcyclopentane-3-carboxylic acid,** amide, and chloride (ZELINSKY), A., i, 675.
- β -Methylpentane- $\beta\delta$ -diol** and its diacetate (FRANKE), A., i, 255.
 See also Dihydroxyhexane.
- β -Methylcyclopentanemethylidene carboxylic acid,** and its amide and nitrile (SPERANSKI), A., i, 341.
- 1-Methyl-1-cyclopentanol,** synthesis of (ZELINSKY and MOSER), A., i, 670; (ZELINSKY and NAMJETKIN), A., i, 672.
- 1-Methyl-3-cyclopentanol** and its iodide (ZELINSKY), A., i, 598.
- β -Methylcyclopentanolacetic acid,** esters (SPERANSKI), A., i, 341.
- β -Methylcyclopentanone,** condensation of, with ethyl bromoacetate (SPERANSKI), A., i, 341.
- Methylpentanones, α - and β -,** benzylidene derivatives of (WALLACH and SPERANSKI), A., i, 723.
- β -Methyl- δ -pentanone- $\alpha\alpha$ dicarboxylic acid** and its ethyl ester and silver salt (KNOEVENAGEL and BRUNSWIG), A., i, 641.
- 1-Methyl- Δ^2 -cyclopentene,** active (ZELINSKY), A., i, 598.
- Methylpentosan,** occurrence of, in nature (SOLLIED), A., ii, 219.
- Methylphenazole salts** (WOHLFAHET), A., i, 509.
- 4-Methylpheno- β -naphthacridine,** 3-amino- (ULLMANN), A., i, 730.
- 2-Methyl- γ -phenonaphthaxanthone** (STROHBACH), A., i, 172.
- 3 Methylphenoxazine** (KEHRMANN and URECH), A., i, 567.
- N-Methylphenyleneiminoazole.** See 4:5-Diphenylene-1-methyliminoazole.
- Methylphloroglucinol** hydrochloride, amino- (BOEHM), A., i, 38.
 mono- and di-alkyl ethers, and their dibromo- and acetyl derivatives (HERZIG and EISENSTEIN), A., i, 772.
- 2-Methylphloroglucinol** 3:5-dimethyl ether, and its nitroso-derivative (POLLAK and SOLOMONICA), A., i, 148.
- Methylphloroglucinolcarboxylic acid,** and its monomethyl ether, and their methyl esters and acetyl derivatives (HERZIG and WENZEL), A., i, 464.
- β -Methylpimelic acid (*hexanedicarboxylic acid*),** derivatives of (EINHORN and KLAGES), A., i, 74.
- Methylpiperidine.** See Pipeline.
- 1-Methylpiperidine-2:6-dicarboxylic acid** and its methyl ester and its methiodide (WILLSTÄTTER and LESSING), A., i, 561.
- α -Methyl- δ -isopropyladipic acid (*octanedicarboxylic acid*),** identity of, with dihydrocamphoric acid (MARTINE), A., i, 629.
- Methylpropylecarbinol.** See Amyl alcohol.
- 1-Methylpropyl-2-ethylethylene.** See Octylene.
- 2-Methyl-5-isopropyl-tetra- and -hexa-hydrobenzaldehyde** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 102.
- 2-Methyl-5-isopropylhexahydrobenzyl-amine, -aniline, and -ethylamine** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 90.
- 2-Methyl-5-isopropylhexahydrobenzyl-dimethylamine** and 6-chloro- (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 90.

- δ-Methyl-α-isopropylhexoic acid.** See Decoic acid.
- ε-Methyl-β-isopropyl-α-hexylene glycol.** See αγ-Decylene glycol.
- Methyl propyl ketone,** condensation of, with benzaldehyde (HARRIES and BROMBERGER), A., i, 792.
- 4-Methylpyrazole** and its **dicarboxylic acid** (KLAGES), A., i, 497.
- 3-Methylpyridazine** and 6-chloro-derivative (POPPENBERG), A., i, 61.
- Methylpyridazinephthalone** (POPPENBERG), A., i, 62.
- 3-Methylpyridazone** and **Methylpyridazinone** (POPPENBERG), A., i, 61.
- Methylpyridines.** See Picolines.
- 2-Methylpyridine-6-carboxylic acid,** ethyl ester (PINNER, DONCHI, DREXLER, and BAY), A., i, 178.
- 4-Methylpyridinecarboxylic acid (*homonicotinic acid*),** condensation of, with acetaldehyde (KOENIGS), A., i, 180.
- Methylpyridinecarboxylic acids.** See also Picolinecarboxylic acids.
- Methylpyridinetricarboxylic acid,** m. p. 208° (DOBIE and LAUDER), T., 146; P., 1901, 252.
- 2-Methyl-6-pyridylacetoin** and its salts (PINNER, DONCHI, DREXLER, and BAY), A., i, 178.
- 2-Methyl-6-pyridyl methyl ketone** and its platinichloride (PINNER, DONCHI, DREXLER, and BAY), A., i, 178.
- 4-Methylpyrimidine,** amino-, chloro-, bromoamino-, and chloroamino-derivatives of (GABRIEL and COLMAN), A., i, 498.
- 4-Methylpyrimidine-6-carboxylic acid** and its salts (ANGERSTEIN), A., i, 123.
- 2-Methylpyrrole-3:4:5-tricarboxylic acid,** ethyl ester (FEIST and STENGER), A., i, 490.
- 1-Methylpyrrolidine,** physiological action of (TUNNICLIFFE and ROSENHEIM), A., ii, 681.
- 1-Methylpyrrolidine-2-carboxylic acid** (WILLSTÄTTER and ETTLINGER), A., i, 233.
- 1-Methylpyrrolidine-2:5-dicarboxylic acid** and its additive and metallic salts, methyl ester and its methiodide, and its isomeride (WILLSTÄTTER and LESSING), A., i, 561.
- 1-Methylpyrrolidine-2:3:4:5-tetracarbonylmethylamide** (WILLSTÄTTER and LESSING), A., i, 561.
- Methylpyruvic acid,** formation of, from pyruvic acid (ERLENMEYER), A., i, 595.
- ethyl ester, oxime of (BOUVEAULT and LOCQUIN), A., i, 704.
- 1-Methyl-4-ψ-quinol, 3:5-dibromo-,** and its acetyl and benzoyl derivatives (AUWERS), A., i, 218.
- 2-Methylquinoline.** See Quinaldine.
- 7-Methylquinoline,** sulphur base from, tetranitrate and hydrochloride of the acetyl compound of (EDINGER and EKELEY), A., i, 231.
- 8-Methylquinoline,** iodo- (HOWITZ), A., i, 397.
- 1-Methyl-2-quinolone,** *trinitro* (DECKER), A., i, 494.
- Methylrubicanic acid,** synthesis of (PRÖSCHER), A., i, 505.
- Methylsalicylaldehyde,** *α*-3-dibromo- (AUWERS and HUBER), A., i, 213.
- 5-Methylsalicylic acid,** *α*-chloro- and its methyl ester (AUWERS and HUBER), A., i, 214.
- Methylsalicylic chloride** (FISCHER and SLIMMER), A., i, 621.
- Methylsalicylidene camphor,** crystallographic properties of (MINGUIN), A., i, 632.
- 4-Methylselenoantipyrine** (MICHAELIS and STEIN), A., i, 318.
- 4-Methylstilbazole,** *p*-amino- and *p*-nitro-, and their salts (KNICK), A., i, 825.
- p-Methyl-2-stilbazole** and **-2-stilbazoline** and their salts (DIERIG), A., i, 826.
- γ-Methylsorbic acid** (DOEBNER), A., i, 340.
- p-Methylstyrene,** *αβ*-dichloro-, action of phenylhydrazine and of phenylmethylhydrazine on (KUNCKELL and VOSSEN), A., i, 645.
- p-Methyltetrahydroacetophenone** and its semicarbazone (STEPHAN and HELLE), A., i, 632.
- 2-Methyltetrahydroisoquinoline** and its compound with ethyl iodoacetate (WEDEKIND and OECHSLER), A., i, 118.
- 1-Methyltetrahydroquinolinecarboxylic acids.** See Kairolinecarboxylic acids.
- Methyltetramethylenediacarboxylic acid** and its ethyl ester and salts (IPATIEFF and MICHAELADZE), A., i, 589.
- 2-Methylcyclotetramethylene-1:3-disulphone,** and its bromide (AUTENRIETH and HENNINGS), A., i, 389.
- Methyltetroxide** and its alkaloidal salts, lactone, and phenylhydrazide (RUFF and KOHN), A., i, 591.
- Methyltetrose** and its phenylbenzylhydrazone and ethylmercaptal (RUFF and KOHN), A., i, 591.
- 5-Methylthioacridol** and its salts (EDINGER and ARNOLD), A., i, 181.
- Methylthioantipyrine** (MICHAELIS and BINDERWALD), A., i, 317.

- Methylthiocarbamic acid**, esters (DE-LÉPINE), A., i, 702.
- Methylthiocyanomalonic acid**, ethyl ester (WHEELER and JOHNSON), A., i, 761.
- 3-Methyltoluidine**, 4-nitro- (FISCHER and RIGAUD), A., i, 399.
- α-Methyltricarballylic acids** (*butanetri-carboxylic acids*), synthesis and dissociation constants of, and their cyano-derivatives, esters, and anhydro-acids (BONE and SPRANKLING), T., 29; P., 1901, 215.
- Methyltrimethylene**, action of bromine on, in absence of light (DEMJAHOFF), A., i, 334.
- Methyltriose** and its phenylosazone and phenylbenzylhydrazone (WOHL and FRANK), A., i, 532.
- N-Methyltriphenazinoxazinecarbazole**. See Triphenoxazine-5-phenylazine.
- Methyluracil**, oxidation of (BEHREND and GRÜNEWALD), A., i, 834. alkyl derivatives, constitution of (BEHREND and THURM), A., i, 832.
- β-Methyluracil**, 5-nitro-, and its **-4-carboxylic acid** and its salts (BEHREND and THURM), A., i, 833.
- δ-Methyluric acid**, constitution of (BEHREND and THURM), A., i, 832.
- 8-Methylxanthine** (BOEHRINGER & SÖHNE), A., i, 125.
- Micrococcus** and *Mucor Rouxianus*, effect of, on potatoes (VUILLEMIN), A., ii, 343.
- Micro-organisms**, mode of utilisation of tertiary carbon by (MAZÉ), A., ii, 578. mode of utilisation of ternary nourishment by (MAZÉ), A., ii, 577. decomposition of bread by (KÖNIG, SPIECKERMANN, and TILLMANS), A., ii, 686.
- See also Moulds.
- Microsporon audouini**, chemical action of (ÉMERY), A., ii, 38.
- Miersite**, composition of (PRIOR), A., ii, 404.
- Milfoil**, oil of (AUBERT), A., i, 810.
- Milk**, human, composition of (RICHMOND), A., ii, 677. and its substitutes, comparative digestibility of (TUNNICLIFFE), A., ii, 673. analysis of, use of the refractometer in the (UTZ), A., ii, 539. calculation of the simultaneous addition of water to, and withdrawal of cream from (GÉNIN), A., ii, 183. presence of nitrates in, as an indication of adulteration (GERBER and WIESKE), A., ii, 540.
- Milk**, decrease in the acidity of (KIRSTEN), A., ii, 365, 540. heated, detection of (DU ROT and KÖHLER; STORCH; UTZ; ARNOLD and MENTZEL), A., ii, 539. detection of citric acid in (WÖHLK), A., ii, 364; (DENIGÈS), A., ii, 365. fresh and sour, detection of artificial colouring matters in (BLYTH), A., ii, 540. detection of formaldehyde in (RIEGLER), A., ii, 585. test for preservatives in (LEACH), A., ii, 113. estimation of fat in, by means of the refractometer (HALS and GREGG), A., ii, 708. estimation of lactose in (PATEIN), A., ii, 536. estimation of lactose in, polarimetrically (PEYTOUREAU), A., ii, 361. estimation of lecithin in (BORDAS and DE RACZKOWSKI), A., ii, 587. estimation of phosphoric acid in (REIGER), A., ii, 225. sheep's, use of Gerber's apparatus for the estimation of fat in (BEGER and WOLFS), A., ii, 482.
- See also Agricultural Chemistry.
- Milk sugar**. See Lactose.
- Minerals**, fusion point of, and the conclusions derived therefrom (BRUN), A., ii, 461. fusibility of, and their solubility in magmas (DOELTER), A., ii, 28. action of ammonium chloride on (CLARKE and STEIGER), A., ii, 269. occurring in Australian bat guano (MACIVOR), A., ii, 460. Bulgarian (KOVÁČ), A., ii, 327. from Casal di Pari (Province of Grosseto) (DE ANGELIS D' OSSAT), A., ii, 665. from the Ilmen Mountains (SUSCHTSCHINSKY), A., ii, 30. from the Pacific States (TURNER), A., ii, 461.
- Minerals**, new. See also :—
- Anapait.
 - Arsensulfurite.
 - Baumhauerite.
 - Brunsvigite.
 - Chalmersite.
 - Esmeraldite.
 - Hydrogöthite.
 - Iodemblomite.
 - Koenenite.
 - Manganosphaerite.
 - Metakoennenite.
 - Mooraboolite.
 - Natrolunite.
 - Natrojarosite.

Minerals, new. See :—

Natron-pllogopite.
Neontantalite.
Pigeonite.
Plumbojarosite.
Pseudomesolite.
Schertalite.
Serendibite.
Sulfurite.
Titanomagnetite.
Vanthoffite.

Mineral waters. See Water.

Mirabilite, separation of, in the Karabugas Gulf (KURNAKOFF), A., ii, 510.

Mixtures with maximum or minimum vapour pressure (KUENEN and ROBSON), A., ii, 599.

solid binary, melting of, by cooling (ROOZEBOOM), A., ii, 490.

ternary, vapour pressure of (SCHREINEMAKERS), A., ii, 61, 243, 380, 599.

Molasses from pale peat, composition of (BORNTRÄGER), A., i, 203; ii, 187. See also Agricultural Chemistry.

Molecular attraction (MILLS), A., ii, 596. complexity of acetic acid in chloroform solution (DAWSON), T., 521; P., 1902, 69.

compounds, behaviour of, on dissolution (BODLÄNDER and FITTIG), A., ii, 248; (WUTH), A., ii, 594.

conductivity, specific, of sodium chloride solutions, temperature variations of the (LYLE and HOSKING), A., ii, 440.

fission produced by bromine (FOSSE), A., i, 449.

solution volume in relation to the rotation of ethyl tartrate in various solvents (PATTERSON), T., 1131; P., 1902, 133.

structure and crystalline form, relation between (ZIRNGIEBL), A., ii, 496.

weight. See Weight, molecular.

Molybdenum alloys (STAVENHAGEN and SCHUCHARD), A., ii, 265.

Molybdenum boride (TUCKER and MOODY), T., 16; P., 1901, 129.

oxide, compounds of, with hypophosphorous acid (MAWRROW), A., ii, 25, 144.

lower oxides of, analysis of (FRIEDHEIM and HOFFMANN), A., ii, 265.

blue oxides of (BAILHACHE), A., ii, 144.

oxides (GUICHARD), A., ii, 265.

Molybdic acid, reduced by hydriodic acid, estimation of (GOOCH and PULMAN), A., ii, 230.

Silicomolybdates (ASCH), A., ii, 83.

Molybdenum, estimation and separation of :—

estimation of metallic (FRIEDHEIM and HOFFMANN), A., ii, 265. estimation of, volumetrically, in molybdenum steel and ferromolybdenum (BRAKES), A., ii, 533.

estimation of, in steel (AUCHY), A., ii, 430.

separation of, from vanadium (TRUCHOT), A., ii, 478.

Molybdenum steel, estimation of, volumetrically (KOPP), A., ii, 430. estimation of molybdenum in (BRAKES), A., ii, 533.

Monazite, occurrence of, in iron-ore and in graphite (DERBY), A., ii, 331.

Monazite sand, chemistry of (DROSSBACH), A., ii, 659.

from New Granada (BLUMAN), A., ii, 28.

estimation of thorium in (BENZ), A., ii, 431.

Monetite, artificial preparation of (DE SCHULTEN), A., ii, 89.

Montanic acid and its salts (v. BOYEN), A., i, 72.

Mooraboolite from the Moorabool valley, Victoria (PRITCHARD), A., ii, 612.

Mordants, dyeing with (LIEBERMANN), A., i, 475.

wool. See Wool.

Morphigenine. See 10-Hydroxyphenanthrene, 9-amino-.

Morphine, correlation of the constitution and physiological action of (VAHLEN), A., i, 727.

oxidation of (BOUGAULT), A., i, 638. resistance of, to putrefaction (PANZER), A., ii, 295.

and strychnine, behaviour of, in putrefying corpses, and detection of, in urine (AUTENRIETH), A., ii, 368.

characteristic reaction of (FLEURY), A., ii, 186.

Reichard's "silver" method for the estimation of, in opium (SCHIDROWITZ), A., ii, 483.

Mortar, Abich's, new form of (IWANOFF), A., ii, 529.

Moulds, amino-acids as food material for (EMMERLING), A., ii, 521.

decomposition of butter fat by (LAXA), A., ii, 97.

See also Micro-organisms.

Mucilage of the prickly pear (HARLAY), A., ii, 685.

Mucin (MÜLLER), A., i, 195.

Mucobromic and **Mucochloric acids**, action of, on benzamidine (KUNCKELL and v. ZUMBUSCH), A., i, 835.

- Mucoids** (MÜLLER), A., i, 195.
 in elastic tissue (RICHARDS and GIES), A., i, 410.
 in tendon (CUTTER and GIES), A., i, 67.
 reactions of various (MEAD and GIES), A., i, 409.
- Muconic acid**, synthesis of (DOEBNER), A., i, 343.
- Mucor Rouxianus** and a micrococcus, effect of, on potatoes (VUILLEMEN), A., ii, 343.
- Muscle**, action of alcohol on (LEE and SALANT), A., ii, 274, 675.
 basic products from the hydrolysis of (ÉTARD), A., i, 699.
 contact irritability of (ZOETHOUT), A., ii, 465.
 of different classes of animals, proteids of (PRZIBRAM), A., ii, 339.
 smooth, proteids of (VINCENT), A., ii, 340.
 striated, effect of potassium and calcium ions on (ZOETHOUT), A., ii, 414.
 "survival" respiration of (FLETCHER), A., ii, 613.
- Muscovite** from Haddam Neck, Connecticut (BOWMAN), A., ii, 408.
- Muscular energy**, conservation of, in an atmosphere of carbon dioxide (LHOTAK DE LHOATA), A., ii, 675.
 work, influence of, on metabolism (KAUP), A., ii, 615.
- Mushrooms**. See Fungi.
- Mussels**, physiological action of decoction of (THIBERT), A., ii, 96.
- Mustard oil**, estimation of (ROESEN), A., ii, 483.
- Musts**, estimation of fluorine in (WINDISCH), A., ii, 104.
- Myrcene**, and its polymeride from bay oil (HARRIES), A., i, 811.
- Myricetin** and its tetrabromo-derivative and pentamethyl ether and its acetyl compound, and hexaethyl ether (PERKIN), T., 203; P., 1902, 11.
- Myricitrin** and its hydrolysis (PERKIN), T., 207; P., 1902, 11.
- Myrticlorin**, identity of, with osyritrin and violaquerucitrin (PERKIN), T., 477; P., 1901, 88; 1902, 58.
- N.**
- Naphtha** from Ferghana (CHARITSCH-KOFF), A., ii, 509.
- a-Naphthachromone** and its carboxylic acid (v. KOSTANECKI and FROEMSDORFF), A., i, 303.
 melting point of (HEYWANG and v. KOSTANECKI), A., i, 816.
- Naphthacridine** colouring matters (ULLMANN), A., i, 55, 56, 499, 500; (ULLMANN and MARIC), A., i, 183; (ULLMANN, RACOVITZA, and ROZENBAND; ULLMANN, ROZENBAND, MÜHLHAUSER, and GREETHER), A., i, 240.
 derivatives (ULLMANN), A., i, 55, 119.
- $\beta_3\alpha/\beta_1$ -Naphthacridine**, and the hydriodide of its 14-iodo-derivative (STROHBACH), A., i, 184.
- Naphthacridines**, α - and β -, and their salts, and the nitro-derivatives of the α -compound (SENIER and GOODWIN), T., 288; P., 1902, 13.
- Naphthacridone** (STROHBACH), A., i, 183.
- Naphthafuoflavines**, *lin-*, and *lin-ang-*, and chloro- of the *lin-ang*-compound (HINSBERG), A., i, 239.
- Naphthafurfurans**, α - and β -, from coal tar (BOES), A., i, 554.
- Naphthalaldehydic acid**. See 8-Aldehydonaphthoic acid.
- Naphthalene**, synthesis of (ERLENMEYER and KUNLIN), A., i, 225.
 formula of (MARSH), T., 963; P., 1902, 165.
 critical constants and molecular complexity of (GUYE and MALLET), A., ii, 195, 303.
 electrolytic oxidation of (PANCHAUD DE BOTTENS), A., i, 752.
 influence of, on the rotation of ethyl tartrate (PATTERSON), T., 1184; P., 1902, 133.
 1:8-derivatives of, formation of glyoxalines from (NÖLTING), A., i, 314.
- Naphthalene**, 2:6-diamino- (JACCHIA), A., i, 716.
 nitro-derivatives, reduction products of (WACKER), A., i, 506.
- 1:8-dinitro-, condensation products from (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 363.
- Naphthaleneazobenzenesulphone** (Dybowski and HANTZSCH), A., i, 249.
- Naphthalene-2-azo- β -naphthol**, 1-chloro- (MORGAN), T., 1381; P., 1902, 185.
- β -Naphthalenediazoaminotetrahydro- β -naphthalene** (SMITH), T., 906; P., 1902, 137.
- Naphthalenediazonium** hydroxides, bromo- and chloro-, interchange of halogen for hydroxyl in (ORTON), P., 1902, 252.
- Naphthalene-1:2-dicarboxylic acid**, dihydroxy- and dibromodihydroxy-fluorescins of (LIEBERMANN and WÖBLING), A., i, 547.
- Naphthalenedisulphonic acid**, diamino- (JACCHIA), A., i, 716.

- Naphthalene-8-sulphonic acid**, 2:6-diamino-, and 2-chloro-6-nitro-, and its salts (JACCHIA), A., i, 716.
- Naphthalenoid aminosulphonic acids**, acetyl derivatives of (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 445.
- Naphthalenoid thiocarbamides** containing hydroxyl groups (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 92.
- Naphthalidodimethyl ketone** and its oxime and phenylhydrazone (ZINK), A., i, 34.
- α -Naphtha-isooxazine** derivatives, synthesis of (BETTI), A., i, 57.
- Naphthaphenazothionium** picrates, α - and β - (KEHRMANN, GRESSLY, and MISSLIN), A., i, 568.
- Naphtharonylacetic acid**, ethyl ester, and amide (RUHEMANN), T., 425; P., 1902, 46.
- Naphthazarin** and *iso***Naphthazarin** (FRIEDLÄNDER and SILBERSTERN), A., i, 793.
- β -Naphthazothionium** picrate (KEHRMANN, GRESSLY, and MISSLIN), A., i, 569.
- Naphthenes** and their carboxylic acids, genesis of (ASCHAN), A., i, 749.
- α -Naphthoic acid**, synthesis of (ERLENMEYER and KUNLIN), A., i, 225.
- 3-Naphthoic acid**, 2-chloro-, and its amide, chloride, and ethyl ester (STROHBACH), A., i, 149.
- α -Naphthol**, method of distinguishing, from β -naphthol (JORISSEN), A., ii, 536.
- α -Naphthol**, 8-amino-, and its hydrochloride, sulphate, and acetyl derivative (FRIEDLÄNDER and SILBERSTERN), A., i, 793.
- 4:5-dinitro-, and its methyl and ethyl ethers (ULLMANN and CONSONNO), A., i, 753.
- β -Naphthol**, condensation of, with dimethylaminobenzaldehyde (HEWITT, TURNER, and BRADLEY), T., 1207; P., 1902, 181.
- β -Naphthol**, 6-amino- (JACCHIA), A., i, 716.
- Naphthols**, α - and β -, action of ethyl chlorofumarate on the sodium derivatives of (RUHEMANN), T., 422; P., 1902, 45.
- β -Naphtholsulphonic acid**, 7-amino-, and its diazo-compound (CASSELLA & Co.), A., i, 718.
- β -Naphthol-8-sulphonic acid**, 6-amino-, and 6-nitro-, and its salts (JACCHIA), A., i, 717.
- Naphtholsulphonic acids**, thiocarbamides of (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 366.
- 1- β -Naphthoxyethylpiperidine** and its salts (MARCKWALD and FROBENIUS), A., i, 24.
- α -Naphthoxyfumaric acid**, ethyl ester (RUHEMANN), T., 426; P., 1902, 45.
- β -Naphthoxyfumaric acid** and its ethyl ester (RUHEMANN), T., 422; P., 1902, 45.
- α -Naphthylamine** derivatives (FUSSGANGER), A., i, 279.
- α -Naphthylamine**, 5-bromo- and 8-chloro-, and their acetyl derivatives, and 4:8-dinitro- (ULLMANN and CONSONNO), A., i, 753.
- α -Naphthyl-amine**, -methylamine, and -dimethylamine, 4:5-dinitro- (ULLMANN and CONSONNO), A., i, 753.
- β -Naphthylamine** derivatives, preparation of (BADISCHE ANILIN- & SODAFABRIK), A., i, 91.
- β -Naphthylamine**, 1-nitro-, action of nitrous acid on (MORGAN), T., 1381; P., 1902, 185.
- Naphthylamines**, action of methylene diiodide on (SENIER and GOODWIN), T., 280; P., 1902, 12.
- β -Naphthylamine-8-sulphonic acid**, 6-chloro- and 6-nitro-, and their salts (JACCHIA), A., i, 716.
- β -Naphthylamino-3-naphthoic acid** (STROHBACH), A., i, 183.
- 5- α -Naphthylamino-1-nitroanthraquinone** (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 382.
- β -Naphthylarsenic compounds** (MICHAELIS and BÜSCHLER), A., i, 416.
- Naphthyldiguanides**, α - and β -, and their salts (SMOLKA and HALLA), A., i, 323.
- 1- β -Naphthyl-2:3-dimethyl-2:5-thiopyrazole** (MICHAELIS and BINDEWALD), A., i, 317.
- 1:8-Naphthylene-diamine** and its derivatives, condensation products of, with acetone (BADISCHE ANILIN- & SODAFABRIK), A., i, 124.
- β -Naphthylhydrazone**, use of, for the detection and separation of the sugars (HILGER and ROTHENFUSSER), A., ii, 479.
- α -Naphthyl-s-iodonitrophenyliodonium** hydroxide and salts (WILLGERODT and ERNST), A., i, 18.
- α -Naphthylmercury acetate** (DIMROTH), A., i, 656; (PESCI), A., i, 849.
- 4- α -Naphthylsemithiocarbazide** (BUSCH and ULMER), A., i, 575.
- Naphthysulphone-acetic acids**, and **α -ethyl alcohols**, α and β - (TRÖGER and BUDDÉ), A., i, 776.

- β-Naphthylthioantipyrine** (MICHAELIS and BINDEWALD), A., i, 317.
- Nataloe-emodin** (LÉGER), A., i, 549.
- Natroalunite** from Colorado (HILLEBRAND and PENFIELD), A., ii, 667.
- Natroatrosite** from the Soda Spring Valley, Nevada (HILLEBRAND and PENFIELD), A., ii, 666.
- "**Natromètre**" (DEMICHIEL), A., ii, 530.
- Natron-phlogopite** (WEINSCHENK), A., ii, 569.
- Natural water.** See Water.
- Neatsfoot oils**, analytical constants of (GILL and ROWE), A., ii, 481.
- Neodymium sulphate**, crystalline form of (DUFET), A., ii, 326.
- sulphates, acid and basic (MATIGNON), A., ii, 325.
- Neon**, atomic weight and classification of (WILDE), A., ii, 393.
- Neontantalite**, a new mineral (TERMIER), A., ii, 406.
- Nepenthes**, the proteolytic enzyme of (VINES), A., ii, 165.
- Neroli oil (orange blossom oil)** (JEANCARD and SATIE), A., i, 45.
- sweet (THEULIER), A., i, 386.
- Chinese (UMNEY and BENNETT), A., i, 811.
- Nerve tissue**, influence of lecithin on the development of (DESGREZ and ZAKY), A., ii, 465.
- analysis of (BARRIERI), A., ii, 618.
- Nerves**, fatigue in (BRODIE and HALLIBURTON), A., ii, 416.
- Neutralisation**, studies on (BERTHELOT), A., i, 199.
- Nickel alloy** with magnesium, electrolytic preparation of (COEHN), A., ii, 660.
- Nickel salts**, conditions of equilibrium of deliquescent and hygroscopic (HARTLEY), A., ii, 197.
- compounds of, with cupric oxide (MAILHE), A., ii, 140, 262.
- as reagents for reducing sugars (DUYK), A., ii, 54.
- Nickel carbonyl**, chemical dynamics of (MITTASCH), A., ii, 307.
- chloride, compound of, with iodine trichloride (WEINLAND and SCHLEGELMILCH), A., ii, 315.
- ammonium chromate (BRIGGS), P., 1902, 255.
- potassium sulphate (MALLET), T., 1550; P., 1902, 198.
- sulphides, formation of (ANTONY and MAGRI), A., ii, 25.
- Nickel**, modification of Rose's method for the separation of, from cobalt (TAYLOR), A., ii, 476.
- Nickel**, separation of, from zinc (ROSENHEIM and HULDSCHINSKY), A., ii, 108.
- Nicotianine** from tobacco (FRÄNKEL and WOGRINZ), A., ii, 470.
- Nicotine**, amount of, in tobacco leaves at various periods of their growth (KISLING), A., ii, 625.
- detection of, by means of formaldehyde (SCHINDELMEISER), A., ii, 115.
- Nicotinic acid** (*pyridine-3-carboxylic acid*) 4-amino-, and its additive salts and methyl ester (KIRPAL), A., i, 564.
- iso***Nicotinic acid** (*pyridine-4-carboxylic acid*), ethyl ester, and its salts (PINNER, DONCHI, DREXLER, and BAY), A., i, 177.
- ethylbetaine of (CAMP), A., i, 824.
- iso***Nicotinic acid** (*pyridine-4-carboxylic acid*), 3-amino-, and its methyl ester and its hydrate and additive salts (GABRIEL and COLMAN), A., i, 841.
- 2:6-dithiol-, and its methyl ester and salts (BITTNER), A., i, 824.
- Niobioxalic acid**, alkali salts (RUSS), A., i, 586.
- Nitration** with ethyl nitrate (WISLICENUS and ENDRES), A., i, 541.
- of ring compounds, influence of the solvent during the (SCHWALBE), A., i, 755.
- and bromination in the aromatic series (BLANKSMA), A., i, 600.
- Nitric acid and peroxide.** See under Nitrogen.
- Nitrides** of the alkaline earths, formation and stability of (GAUTIER), A., ii, 453.
- Nitrification.** See Agricultural Chemistry.
- Nitrile**, $C_8H_{11}N$, from β -methylcyclopentanolanacetic acid (WALLACH and SPERANSKI), A., i, 722.
- $C_{12}H_{23}ON$, from methyl nonyl ketone and hydrogen cyanide (CARETTE), A., i, 346.
- Nitriles**, preparation of (BUCHERER), A., i, 533.
- critical constants and molecular complexity of (GUYE and MALLET), A., ii, 243, 303.
- as solvents in molecular weight determinations (KAHLENBERG), A., ii, 310.
- cycloisoNitriles** and their derivatives (SABANÉFF, RAKOWSKY, and PROSIN), A., i, 604.
- Nitriles.** See also :—
- Acetonitrile.
 - α-Acetoxy-γ-phenylbutyronitrile.
 - Adiponitrile (*butane, αα'-dicyano*).
 - α-Anilinopyrotartaric acid nitrile.
 - β-Anilinotricarballylic acid nitrile.

Nitriles. See :—

- Anthranilidooacetonitrile.
 Benzidine-*p*-chloromandelonitrile.
 Benzonitrile.
 Benzyl cyanide.
 Benzylideneaminoacetonitrile.
o-Carboxyanilino- α -phenylacetonitrile.
 Cinnamoylaminoacetonitrile.
 Diacetonitrile.
 Diethylaminoacetonitrile.
 α -Diethylaminopropionitrile.
 Dihydrofencholenonitrile.
 2:4-Dihydroxybenzylidenemalononitrile.
 p -Dimethylaminobenzylidenemalononitrile.
 2-Ethoxybenzonitrile.
 p -Ethoxybenzyl cyanide.
 Hippuronitrile.
 m -Hydroxybenzonitrile.
 4-Hydroxydihydrofencholenonitrile.
 Hydroxymethylsalicylonitrile.
 Hydroxynitriles.
 Hydroxytoluonitrile.
 Isatomalononitrile.
 Malononitrile.
 Mandelonitrile.
 Methylcamphoroniitrite.
 Methylenearminoacetonitrile.
 β -Methylcyclopentanemethylidene-carboxylonitrile.
 Phenanthraquinone cyanides.
 Phenethyl cyanides.
 Phenylacetonitrile.
 γ -Phenylbutyronitrile.
 α -Phenyl-*p*-chlorocinnamomitrile.
 Phenylcrotononitrile.
 p -Phenylenediaminodi-*p*-chlorobenzyl cyanide.
 Phenylhydantoinitrile.
 Pyridyl cyanides.
 p -Toluidinomethylenebenzyl cyanide.
 m -Toluonitrile.
 Tri-*p*-anisylacetonitrile.
 m -Xylinidomethylenebenzyl cyanide.
- Nitroamino-alcohols** (FRANCHIMONT and LUBLIN), A., i, 427.
- Nitro-compounds**, reducing action of some (VIGNON and GERIN), A., i, 9. action of zinc ethyl on (LACHMAN), A., i, 198. reduction of, by direct hydrogenation in contact with finely divided metals (SABATIER and SENDERENS), A., i, 701. transformation of, into hydroxamic acids (ULPIANI and FERRETTI), A., i, 430. aromatic, action of light on (CIAMICIAN and SILBER), A., i, 433. reduction of, with tin and hydrochloric acid (PINNOW), A., i, 671.

LXXXII. ii.

Nitro-compounds, aromatic, reduction of, to amines (BOEHRINGER & SÖHNE), A., i, 715. reactions of (MEISENHEIMER), A., i, 795.

*iso***Nitro-compounds.** See Nitronic acids.

Nitrogen, preparation of, from ammonium nitrate (MAI), A., ii, 69.

band spectra of (DESLANDRES), A., ii, 373.

stereochemistry of (WEDEKIND and OECHSLEN), A., i, 118.

specific volume of, at 78° (DEWAR), A., ii, 305.

liquid, variation with temperature of the surface energy and density of (BALY and DONNAN), T., 907; P., 1902, 115.

asymmetric, new mode of isomerism of (WEDEKIND), A., i, 643.

quiquevalent, isomeric salts containing (KIPPING), P., 1902, 209, 211.

importance of, in the synthesis of proteins in plants (CZAPEK), A., ii, 280.

Nitrogen bromides containing propionyl (CHATTAWAY), T., 814; P., 1902, 113.

bromides and chlorides derived from ortho-substituted anilides (CHATTAWAY and WADMORE), T., 984; P., 1902, 173.

chlorides containing propionyl (CHATTAWAY), T., 637; P., 1902, 64.

substituted (ORTON), T., 497, 503; P., 1902, 59, 73; (CHATTAWAY), P., 1902, 165.

containing the azo-group (CHATTAWAY), T., 982; P., 1902, 174.

probable new oxide of (HELBIG), A., ii, 654.

peroxide (tetroxide), liquid, as a solvent (FRANKLAND and FARMER), P., 1902, 47; (BRUNI), A., ii, 312.

oxides, direct hydrogenation of, by contact action (SABATIER and SENDERENS), A., ii, 605.

Nitrogen acids :

Nitric acid, physical properties of solutions of (VELEY and MANLEY), A., ii, 135.

absorption spectra of (HARTLEY), T., 559; P., 1902, 67, 239.

electrolytic reduction of, in presence of hydrochloric or sulphuric acid (TAFEL), A., ii, 559.

ionic and thermal coefficients of (VELEY and MANLEY), A., ii, 316.

reaction between, and hydrogen iodide (ECKSTÄDT), A., ii, 130.

chemical equilibrium in the reduction of, by means of nitric oxide (SAPOSCHNIKOFF), A., ii, 16.

Nitrogen acids:—

Nitric acid and hydrochloric acid, relative strength of (KÜHLING), A., ii, 79, 252; (SACKUR; BODLÄNDER), A., ii, 204; (BODLÄNDER and SACKUR), A., ii, 314. behaviour of, towards brucine (LUNGE), A., ii, 288, 427; (WINKLER), A., ii, 353. compounds of, with acetic and with propionic acids (PICTET and GENEQUAND), A., i, 584. detection of, in presence of alkali ferri- and ferro-cyanides (LEUBA), A., ii, 583. reaction of the phenolsulphonic reagent in the estimation, colorimetrically, of (MONTANARI), A., ii, 287. estimation of, in water (WOY), A., ii, 694. estimation of, colorimetrically, in water (NOLL), A., ii, 173. estimation of, in water by the indigo-carmin method (TROTMAN and PETERS), A., ii, 535. estimation of, in chlorinated waters (MARCILLE), A., ii, 173.

Nitrates, presence of, in milk as an indication of adulteration (GERBER and WIESKE), A., ii, 540. effect of, on Bacteria (PAKES), A., ii, 97. organic, constitution of (MARSHALL and WIGNER), P., 1902, 32. See also Agricultural Chemistry.

Nitrous acid, behaviour of, towards brucine (LUNGE), A., ii, 288, 427; (WINKLER), A., ii, 353. estimation of, in sodium nitrite (SCHULTZ), A., ii, 473. estimation of, gasometrically, in urine (GERLINGER), A., ii, 173.

Nitrogen, detection and estimation of:—

test for, in pyrrole compounds by Lassaigne's method (KEHRER), A., ii, 530.

comparative estimations of, by various methods (KELLNER), A., ii, 693.

estimation of (JEAN), A., ii, 172; (DURAND), A., ii, 224; (DAKIN), A., ii, 533.

apparatus for the estimation of (WESENER), A., ii, 426.

Kjeldahl's process for the estimation of (NEUBERG), A., ii, 426.

gaseous, estimation of, gravimetrically (LIDOFF), A., ii, 353.

estimation of, in farm-yard manure (PFEIFFER, LEMMERMAN, RIECKE, and BLOCH), A., ii, 423.

Nitrogen, estimation of:—

estimation of, in urine (NEUBERG; CAMERER), A., ii, 426. estimations, new apparatus for use in distilling ammonia in (WILLIAMS), A., ii, 391. organic, estimation of, in water (CAUSSE), A., ii, 584. See also Agricultural Chemistry.

Nitrogen compounds, density of, in relation to constitution and composition (KANONNIKOFF), A., ii, 244. Maxwell's law, $n^2 = K$ relating to (VAN AUBEL), A., ii, 373.

cyclic, heat of combustion of (ZUBOFF), A., i, 144.

substituted, displacement of benzyl by methyl in (JONES), P., 1901, 205.

Nitrogenous compounds, separation of, from urine (DOMBROWSKI), A., ii, 633.

Nitrohydroxylaminic acid, reactions of (ANGELI), A., i, 78.

hydrolysis of (ANGELI, ANGELICO, and SCURTI), A., i, 765.

Nitro-ketones, cyclic (AUWERS), A., i, 217.

Nitrometer, new, for use with the Sprengel pump (ODDO), A., ii, 48.

Nitronic acids (isonitro-compounds), formation of (BAMBERGER and FREI), A., i, 404.

esters of (BAMBERGER), A., i, 246; (BAMBERGER and GROB), A., i, 247; (BAMBERGER and FREI), A., i, 248.

Nitropurissides, action of sulphites on (FAGES), A., ii, 472.

Nitrosates, reactions of (IPATIEFF and SOLONINA), A., i, 1.

Nitrosoamines, primary, isomerism of, with antidiago-hydrates (HANTZSCH and POHL), A., i, 842.

Nitroso-compounds and bisnitroxyl compounds, connection between (PILOTY), A., i, 734.

action of zinc ethyl on (LACHMAN), A., i, 198.

aromatic, condensation products of, with methylene derivatives (SACHS), A., i, 118.

Nitrosulphuric acid, action of, on saturated hydrocarbous (MARKOWNIKOFF), A., i, 417.

Nitrosyl chloride, reactions of (IPATIEFF and SOLONINA), A., i, 1.

Nodules. See Agricultural Chemistry.

Nonadecane (MABERY), A., i, 733.

n-Nonaldehyde (SCHIMMEL & Co.), A., i, 845.

Nonanedicarboxylic acid. See isoPropylisobutylsuccinic acid.

Nonanetricarboxylic acids. See *alpha*-Diisopropyltricarballylic acids.

- Noninyl alcohol**, trichloro- (trichloro-methyl- β -heptylcarbinol) (MOUREU and DESMOTS), A., i, 289.
- Nonoic acid**, ϵ -amino- (WALLACH and SCHEUNERT), A., i, 806.
- Nonyl alcohol** (*n*ethylheptylcarbinol) (MANNICH), A., i, 592.
- Nonyl alcohol** (*methyl-n-heptylcarbinol*) from oil of rue (POWER and LEES), T., 1592; P., 1902, 193.
- β -Nonylamine** (MANNICH), A., i, 592.
- β -Nonylene** (MANNICH), A., i, 592.
- Nonylene** (γ -propyl- β -hexylene, δ -ethyl- γ -heptylene), chloro-oxime, and nitrosoate of (IPATIEFF and SOLONINA), A., i, 2.
- Norbrazilinic acid** (PERKIN), T., 1035.
- Norisosaccharic acid**, alkaloidal salts of (NEUBERG and WOLFF), A., i, 84.
- Nucleo-histon** (BANG), A., ii, 36.
- salts, electrolysis of (HUISKAMP), A., i, 332.
- Nucleo-proteid** of the suprarenal gland (JONES and WHIPPLE), A., i, 731.
- Nux vomica**, estimation of brucine and strychnine in (DOWZARD), P., 1902, 220.
- O.**
- Oatmeal**, absorption of the nitrogen from, by the dog (NOËL-PATON), A., ii, 336.
- Oats**, estimation of potassium in (BOES), A., ii, 474.
- See also Agricultural Chemistry.
- Oats-cocoa**, analysis of (PETERS), A., ii, 372.
- Obituary notices:**—
- Sir Joseph Henry Gilbert, T., 625.
Henry George Madan, T., 628.
W. B. Randall, T., 629.
Saville Shaw, T., 630.
Maxwell Simpson, T., 631.
William Thomas Newton Spivey, T., 635.
- Oceanic salt deposits**, formation of (VAN'T HOFF and WEIGERT), A., ii, 137; (VAN'T HOFF, MEYERHOFFER, and COTTRELL), A., ii, 321; (VAN'T HOFF and O'FARELLY), A., ii, 461; (VAN'T HOFF and BRUNI), A., ii, 666.
- Ochre**, cupriferous, from New Jersey (CHESTER), A., ii, 611.
- Ochrolechiasic acid** (HESSE), A., i, 681.
- Octacosane** (MABERY), A., i, 734.
- Octadecane**, and chloro- (MABERY), A., i, 733.
- cycloOcta- $\Delta^{1:5}$ -diene** (DOEBNER), A., i, 598.
- n -Octaldehyde** (SCHIMMEL & CO.), A., i, 344.
- Octaldehyde** and its oxime (BOUVEAULT and WAHL), A., i, 592.
- 2:4:2':4'-Octamethyltetra-aminoditolyl-5:5'-methane** and its picrate (MORGAN), T., 657; P., 1902, 87.
- Octane**, dibromo- (ZELINSKY), A., i, 593.
- Octane** (*di-sec.butyl, dimethyl- $\gamma\delta$ -hexane*) (NORRIS and GREEN), A., i, 5.
- Octanedicarboxylic acid**. See α -Methyl- δ -isopropyladic acid.
- α -Octene- $\epsilon\eta$ -dione** (LESER), A., i, 262.
- Octenyl alcohol** (*methylheptenol*) (WALLACH, MEYER, and MITTELSTEN-SCHEID), A., i, 81.
- Octopods**, protein absorption and digestion in (COHNHEIM), A., ii, 572.
- mechanism of intestinal absorption in (COHNHEIM), A., ii, 572.
- Octyl alcohol** (*dibutyl alcohol*), synthesis of (GUERBET), A., i, 130.
- constitution of (GUERBET), A., i, 335.
- Octyl alcohol** (*dimethylisoamylcarbinol*) (KONOWALOFF), A., i, 336.
- Octyl alcohol** (*methylethylbutylcarbinol*) (KONOWALOFF), A., i, 336.
- Octylene**, nitro- (BOUVEAULT and WAHL), A., i, 592.
- Octylene** (δ -methyl- γ -heptylene, 1-methyl-propyl-2-ethylethylene), compound of, with nitrosyl chloride, and nitrosoate (IPATIEFF and SOLONINA), A., i, 2.
- Octylene glycol** (MOUSSET), A., i, 254.
- Octylene glycol** ($\beta\epsilon$ -dimethylhexane- $\beta\epsilon$ -diol) (ZELINSKY), A., i, 593.
- Enanthaldehyde**. See Heptaldehyde.
- Oils**, determination of the solidifying point of (SHUKOFF), A., ii, 196.
- proportion of liquid fatty acids in, and their iodine values (LANE), A., ii, 184.
- temperature reaction of, with sulphuric acid (SHERMAN, DANZIGER, and KOHNSTAMM), A., ii, 436.
- drying and fish, detection of in mixtures (HALPHEN), A., ii, 293.
- fatty, relation of the heat of combustion to the specific gravity in (SHERMAN and SNELL), A., ii, 435.
- lubricating, test for the gumming quality of (GILL), A., ii, 481.
- mineral. See Kerosene, Naphtha, Petroleum, Shale oil.
- oxidised (LEWKOWITSCH), A., i, 528.
- vegetable, constituents of (SCHIMMEL & CO.), A., i, 550.
- from the resin of *Dammaria orientalis* (TSCHIRCH and KOCH), A., i, 479.
- from various elemi (TSCHIRCH and CREMER), A., i, 813.

- Oils**, vegetable, determination of the refractive index of (UTZ), A., ii, 109.
 refractive indices of—correction for temperature (TOLMAN and MUNSON), A., ii, 709.
 action of superheated steam on (KLIMONT), A., i, 202.
 estimation of methyl anthranilate in (HESSE and ZIETSCHEL), A., ii, 538.
 estimation of, in spices, liqueurs, and soaps (MANN), A., ii, 432.
 volatile, specific gravities and coefficients of expansion of (SCHREINER and DOWNER), A., i, 108.
 analysis of (CUTOLO), A., ii, 184.
 application of iodine bromide in the analysis of (HANUŠ), A., ii, 112; (JUNGCLAUSSEN), A., ii, 294.
 comparison of the methods used to determine the iodine values of (HUNT), A., ii, 436.
- Oils**. See also :—
 Arachis oil.
Asarum arifolium, oil of.
Asarum canadense, oil of.
 Asparagus seeds, oil of.
 Bay oil.
 Calamus oil.
 Cinnamon oil.
 Cloves, oil of.
 Cocoa butter (cocoanut oil).
 Coffee, oil of.
 Cottonseed oil.
 Elderberry, red, oil of.
 Eucalyptus oils.
 Galanga oil.
 Horse oils.
 Jasmine blossoms, oil of.
 Juniper, oil of.
Kaempferia Galanga, oil of.
 Lemon oil.
Lindera Benzoin seeds, oil of.
 Linseed oil.
Mentha Pulegium, oil of.
 Milfoil, oil of.
 Mustard oil.
 Neatsfoot oil.
 Neroli oil.
 Olive oil.
 Orange blossom, oil of.
 Petit grain, oil of.
 Polei, oil of.
 Rue, oil of.
 Sage, oil of.
 Sandalwood oil.
Semen Coccognidii, oil of.
 Sesamé oil.
 Shale oil.
 Tallow oils.
 Turkey red oil.
- Oils**. See :—
 Turpentine, oil of.
 Walnut oil.
 Ylang-ylang, oil of.
- Olefine haloïds**, action of water and lead oxide on (KRASSUSKY), A., i, 261.
- Olefines**, formation of aldehydes and ketones from (KRASSUSKY), A., i, 261.
 detection of, in light petroleum (BALBIANO and PAOLINI), A., ii, 109.
 See also Hydrocarbons.
- Oleodistearin**, occurrence of, in the fat of *Theobroma Cacao* seeds (FRITZ-WEILER), A., ii, 470.
- Olive oil**, solid acids of (HOLDE), A., i, 257.
 use of the Bechi test with (TOLMAN), A., ii, 436.
- Olivin** and **Olivoin**, Pagliari's (SPICA), A., i, 346.
- Onon**, **Ononin**, **Ononetin**, **Onospin**, and ψ -**Onospin** (HEMMELMAYR), A., i, 480.
- Opianic acid**, nitro-, action of acetone on (BOOK), A., i, 464.
- Opianic chloride**. See 2-Aldehydo-5:6-methoxybenzoyl chloride.
- Opium**, assay of (STEVENS), A., ii, 711.
 Reichard's "silver" method for the estimation of morphine in (SCHRÖWITZ), A., ii, 483.
 preparations, detection of (BOURQUET-LOT), A., ii, 483.
- Opuntia vulgaris*. See Prickly pear.
- Orange blossom oil**. See Neroli oil.
- Orchid tubers**. See Agricultural Chemistry.
- Ores** containing much arsenic, iron, and lead, decomposition of, with sulphuric acid (NISSENSON and CROTGINO), A., ii, 695.
- Organic compounds**, with open or closed chains, influence of the side chains on the properties of (MENSCHUTKIN), A., ii, 493.
- matter, destruction of, in substances containing phosphorus, arsenic, and metals (MEILLÈRE), A., ii, 288.
 estimation of, in drinking water (DE RIDDER), A., ii, 178.
 vapour in the air (HENRIET), A., i, 714.
- Organism**, action of lecithin on the (DESGREZ and ZAKY), A., ii, 575.
 behaviour of stereo-isomerides in the (NEUBERG and WOHLGEMUTH), A., ii, 336.
- rôle of carbohydrates in the utilisation of insoluble salts by the (VAUDIN), A., ii, 337.

Organism, utilisation of sugars by the (CHARRIN and BROCARD), A., ii, 216, 274.
 decomposition of potassium iodide in the, by nitrites (STEPANOFF), A., ii, 620.
 fate of sodium thiocyanate in the (POLLAK), A., ii, 616.
 fate of uric acid, administered as such, in the (SOETBEER and IBRAHIM), A., ii, 337; (SALKOWSKI), A., ii, 616.
 arsenic in the (CERNÝ), A., ii, 274.
 synthesis of hippuric acid in the (BASHFORD and CRAMER), A., ii, 574.
 correlated production of indoxyI and urea in the (GNEZDA), A., ii, 339.
 pentoses in the (GRUND), A., ii, 415.
 influence of certain poisons on the synthesis of phenolsulphuric acid in the (KATSUYAMA), A., ii, 161.
 synthesis of proteid in the (LOEWI), A., ii, 273.
 formation of ethereal sulphate in the (EMBDEN and GLAESNER), A., ii, 158.
 cyclic terpenes and camphor in the (FROMM and HILDEBRANDT), A., ii, 159; (FROMM and CLEMENS), A., ii, 341.
 synthesis of uric acid in the (WIENER), A., ii, 338.

Organometallic compounds, new reactions of (BLAISE), A., i, 164, 357.
 influence of the methyl groups on the toxicity of (LAFFONT), A., ii, 620.

Organometallic compounds. See also:—
 Acetonyltri-*p*-tolylarsenic compounds.
 Aunylarsenic compounds.
 Benzeneazo-*p*-cresolmercury salts.
 Benzeneazo-*o*-hydroxyphenolmercury salts.
o-Benzophenonemercury salts.
tert.Butylphenylarsenic compounds.
 Cacodylic acid.
 Carboxy-phenyl- and -tolyl-arsenic acids.
 Chromicyanide.
 Cobalticyanide.
 Cobaltioxalic acid.
p-Cresolmercury hydroxide.
p-Cresolmercury salts.
ψ- and *p*-Cumylarsenic compounds.
 Dicarboxyphenylarsenic acid.
 Diethyl-arsini- and -arsino-benzoic acids.
 Diethylenediaminechromium salts.
 Dihydroxydiaoquodipyridinechromium salts.
 Dimethylaminophenylarsenic acid.

Organometallic compounds. See:—
p-Dimethylaminophenylmercury acetate.
 Dimethylamino-*p*-tolylarsenic compounds.
 Dimethylheptenol, mercuric compounds of.
 Diphenylarsenic compounds.
 Diphenyl-*p*-tolylarsenic compounds.
 Ethylenediaminechromium salts.
 Ferribenzoyletic acid.
 Ferricyanic acid.
 Ferrioxalic acid.
 Ferrisalicylic acid.
 Ferrocyanic acid.
 Glycero-arsenic acid.
 Hexacarbaminochromic salts.
o-Hydroxymercurisalicylic acid.
 Hydroxytriaquadopyridinechromium salts.
 Mercuribenzoic acid.
 Mercuriceneol iodide.
p-Mercuriphenyltrimethylaminonium iodide.
o-Mercuryphenol.
 Methylarsenic acid.
 Methylarsine.
β-Naphthylarsenic compounds.
α-Naphthylmercury acetate.
 Niobioxalic acid.
 Osmyloxalic acid.
 Oxalouranous compounds.
p-Oxydiethylarsinibenzoic acid.
 Phenacylmercury chloride.
 Phenetylarsenic compounds.
o-Phenolmercury hydroxide.
p-Phenolmercury oxide.
 Phenylarsenic acids.
 Phenylarsine.
 Phenyl-*ψ*-cumylarsenic compounds.
 Phenylidethylarsenic compounds.
 Phenyl*p*-tolylarsenic compounds.
 Phenyl*m*-xylylarsenic compounds.
 Phenylmercury salts.
 Phenyl-*p*-tolylarsenic compounds.
 Resorcinolmercury salts.
 Terpineol mercuric compounds.
 Tetra-aquodipyridinechromium salts.
oo-Tetramethyl*di*aminoarseno-*p*-toluene.
 Tetraphenylarsenic compounds.
 Thiomolmercury salts.
 Tolytlarsenic compounds.
 Tribenzyl*tri*aminotri-*p*-tolylarsine.
 Tri-*tert*.butylphenylarsenic compounds.
 Tri-*ψ*- and *p*-cumylarsenic compounds.
 Tri-*p*-ethylphenylarsenic compounds.
 Trimesitylarsene compounds.
 Tri-*α*- and *β*-naphthylarsenic compounds.
 Triphenylarsenic compounds.
 Triphenylphenacylarsenic compounds.

Organometallic compounds. See :—

Tri-*m*- and *p*-tolylarsenic compounds.
Tri-*p*-tolylphenacylarsenic compounds.
Tri-*m*- and *p*-xylylarsenic compounds.
Xylylarsenic compounds.

Zinc isobutyloxide.
Zinc ethoxide.
Zinc ethyl.
Zinc methyl.

Organs, arsenic in the (GAUTIER ; BERTRAND), A., ii, 517.

Ornithine and its salts (SCHULZE and WINTERSTEIN), A., i, 231.

detection of (HERZOG), A., i, 486.

Orthoclase of Elba granite, composition of (MANASSE), A., ii, 90.

Orthoformic acid. See under Formic acid.

Orthoperiodic acid. See under Iodine.

Oscine, platinichloride, action of, on tropine platinichloride (HESSE), A., i, 817.

Osmosis and **Osmotic pressure.** See Diffusion.

Osmyloxic acid, potassium salt (VÈZES and WINTREBERT), A., i, 587.

Osse-albumoid (HAWK and GIES), A., i, 408 ; ii, 518.

Osteomalacia, composition of urine in a case of (THOMAS), A., ii, 96.

Osyritrin, identity of, with violaquer-citrin and myrticolorin (PERKIN), T., 477 ; P., 1901, 88 ; 1902, 58.

Oven, new drying (TIOMS), A., ii, 170.

Oxalacetic acid and its phenylhydrazone, dissociation constants of (JONES and RICHARDSON), T., 1158 ; P., 1902, 141.

phenylhydrazone and *p*-bromo-, decomposition of, in aqueous and acid solutions (JONES and RICHARDSON), T., 1140 ; P., 1902, 140.

Oxalacetic acid, ethyl and methyl ethyl esters, copper derivatives of (WISLICENUS and ENDRES), A., i, 423.

Oxalic acid, formation of, by Bacteria (BANNING), A., ii, 469.

velocity of electrolytic decomposition of, in presence of sulphuric acid (ÅKERBERG), A., ii, 488.

action of, on potassium ferricyanide (MATUSCHEK), A., i, 357.

action of, on potassium ferrocyanide (MATUSCHEK), A., i, 272.

supposed use of, for the preparation of hydrogen peroxide (NICOLLE), A., ii, 56.

chromium derivatives of (ROSENHEIM and COHN), A., i, 74.

compounds of, with oxygen compounds (v. BAEYER and VILLIGER), A., i, 357.

Oxalic acid, detection and estimation of, in hydrogen peroxide (ROCHE), A., ii, 181.

and its estimation in urine (AUTENRIETH and BARTH), A., ii, 575.

Oxalic acid, double salts of cadmium and potassium, cadmium and ammonium, and mercury and potassium with (KOHL SCHÜTTER), A., i, 203.

barium salt and its hydrates, and barium hydrogen salt, solubility of (GROSCHUFF), A., ii, 7.

Oxalic acid, ethyl ester, specific heat and heat of vaporisation of (LUGININ), A., ii, 548.

action of sodamide on (TITTERLEY), T., 1529 ; P., 1902, 187.

Oxalodihydroxamic acid (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1572.

ferric salt (HANTZSCH and DESCH), A., i, 709.

Oxalouranous compounds (KOHL SCHÜTTER), A., i, 11.

Oxa-*p*-toluidide, dithio- (SABANÉEFF, RAKOWSKY, and PROSIN), A., i, 604.

Oxaluric acids, formation of (BEHREND and GRÜNEWALD), A., i, 834.

Oxamphenylhydrazide (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1566 ; P., 1902, 197.

Oxanilide, *m*-nitro- (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1569.

Oxanilphenylhydrazide and *o*-, *m*- and *p*-nitro- (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1567 ; P., 1902, 197.

Oxanthranyl methyl ether (MEISENHEIMER), A., i, 796.

Oxazine colouring matter, $C_{26}H_{21}O_2N_2$, from nitroso-*m*-hydroxyphenyl-*p*-tolylamine and *m*-hydroxyphenyl-*p*-tolylamine (GNEHM and VEILLON), A., i, 287.

Oxazine colouring matters, constitution of, and their relation to azonium compounds (KEHRMANN), A., i, 566.

Oxazolidines, synthesis of (KNORR and MATTHES), A., i, 56.

Oxidation with mercuric acetate (BALBIANO and PAOLINI), A., i, 808.

induced (JOB), A., ii, 399.

Auto-oxidation of pyrogallol (HARRIES), A., i, 771.

Oxidation phenomena, apparatus for studying (TRILLAT), A., ii, 602.

Oxides, cyclic aromatic, separation of, from coal tar hydrocarbons (AKTIENGESELLSCHAFT FÜR THEER- & ERD-ÖL-INDUSTRIE), A., i, 714.

Oxidising agents, intensifying action of reducing agents, colloidal noble metals, alkaloids, and other basic substances on (SCHAER), A., ii, 140, 603.

Oxime, $C_9H_{17}O_3N$, from the acid $C_9H_{16}O_2$ (WALLACH), A., i, 801.

$C_{10}H_{15}O_3N_3$ from $C_{10}H_{14}O_3N_2$ (KLAGES), A., i, 497.

$C_{13}H_{17}O_2N$, from the aldol, $C_{13}H_{16}O_2$ (MICHEL and SPITZAUER), A., i, 292.

Oximes, electrolytic reduction of, in sulphuric acid (TAFEL and PFEFFERMANN), A., i, 598.

Oximes. See also :—

Acetoacetic acid, oxime of.

Acetonylnaphthalimidine, oxime of.

Acetophenoneoxime.

Acetyl- α -aminoacetophenone, oxime of.

p-Acetylethylbenzene, oxime of.

5-Acetyl-4-methylpyrazole-3-carboxylic acid, oxime of.

2-Acetyl-3-methylquinoxaline, oxime of.

4-Acetyl-2-phenyl-5-methylfuran, oxime of.

p-Acetyltetrahydrotoluene, oximes of.

Aldehydotrichloroquinodichloride, oxime of.

Anhydrobrazilic acid, oxime of.

Aromadendral, oxime of.

Benzaldoxime.

Benzoyl-5-fluorenoneoxime.

Benzoylformoxime.

Benzoylpuridines, oximes of.

Benzylideneacetone, oxime of.

Benzylideneacetophenone, oxime of.

Benzylidenecamphoroxime.

γ -Benzylidene-ethyl methyl ketone, oxime of.

Benzylidenementhoneoximes.

Benzylidenemethyl ethyl ketone, oxime of.

Benzylidenemethyl *isopropyl* ketone, oxime of.

Benzylidenepropyl methyl ketone, oxime of.

α -Benzylmethyl ethyl ketone, oxime of.

Benzylmethylecyclohexanoneoxime.

Benzyl phenylethyl ketone, oxime of.

Brazilic acid, oxime of

*iso*Butaldehyde, oxime of.

Camphoroxime.

Diacetoneamino-oxime.

Diacetyl, oxime of.

$\gamma\gamma$ -Diacylbutyric acid, ethyl ester, dioxime of.

$\beta\beta$ -Diacyl- α -methylpropionic acid, dioxime of.

Diacetyl- β -naphthylhydrazoxime.

Diacetyl-*o*- and *p*-tolylhydrazoximes.

Oximes. See :—

Dibenzyl methyl ketone, oxime of.

Diisobutyl ketone, oxime of.

Di-*n*- and *iso*-butyryldioximes.

Diethyl diketoxime.

Digitogenic acid, oxime of.

Digitioic acid, oxime of.

Dihydropulegenoneoxime.

3:4-Dimethoxyhydratopaldehyde, oxime of.

m-Dimethylaminoacetophenone, oxime of.

Dimethylpyruvic acid, oximes of.

Dioxypinene, oxime of.

Dioxytariric acid, dioxime of.

Dipropionyldioxime.

o-Dipropoxydiphenyltetrahydropyrone, oxime of.

Diisovaleryldioxime.

4'-(or 5')-Ethoxydeoxybenzoin-2'-carboxylic acid, oxime of.

Fluorenoxic acid, oxime of.

*iso*Hexaldehyde, oxime of.

Homofurfuraldoxime.

Homopiperonylaldehyde, oxime of.

p-Hydroxyacetophenoneoxime.

m-Hydroxybenzaldoxime.

α -Hydroxy- α -dimethylacetonylacetone, dioxime of.

o-Hydroxylaminobenzaldoxime.

Hydroxymethylsalicylaldehyde, oxime of.

o-Hydroxyphenyl *p*-tolyl ketone, oxime of.

Ketohexyltetronic acid, ψ -oxime of.

3-Keto-1:2:2:5:5-pentamethylpyrrolidine, oxime of.

4-Keto-1-phenyl-3-methylpyrazolone, oxime of.

5-Keto- β -isopropylhexoic acid, oxime of.

Ketotariric acid, oxime of.

Ketotrimethylhydroisooxazole, oxime of.

Ketoximes.

Menthoneoxime.

*iso*Mesitylnitrime.

Mesityloxideoxime.

Mesoxamide, oxime of.

p-Methoxyhydratopaldehyde, oxime of.

p-Methoxyphenylacetaldoxime.

Methylheptenoneoxime.

Methylcyclohexenone, oxime of.

Methylcyclohexenonehydroxylaminoxime.

Methylhexylpyruvic acid, ethyl ester, oxime of.

Methylhydrindoneoximes.

Methyl β -methylhexyl ketone, oxime of.

Oximes. See :—

- Methylpyruvic acid, ethyl ester, oxime of.
 Naphthalidomethyl ketone, oxime of.
 Octaldehyde, oxime of.
 4-Phenacyl-3:5-dimethylisooxazole, oxime of.
 Phenacylnaphthalimidine, oxime of.
 Phenanthraquinoneoxime.
 Phenol, *o*-nitroso-
 Phenylglyoxime.
 Phenylhydrazoacetaldoxime.
 Phenyl naphthalidomethyl ketone, oxime of.
 Phenyl *n*-propyl ketoxime.
 Phenyl tetrahydronaphthyl ketoximes.
 Phenyl *p*-xylyl ketoxime.
*iso*Photosantonic acid, oxime of.
*iso*Photosantonolactone, oxime of.
p-Propionylisobutoxybenzene, oxime of.
 Propionylbutyryloximes.
*4-iso*Propyldihydroresorcin, dioxime of.
*iso*Propyllævulic acid, oxime of.
 Pulegoneoneoxime.
 Pulenoneoximes.
 Pyridanedionecarboxylic acid, oxime of.
o-Quinoneoxime.
 Tetrahydrocarvoneisooxime.
 Tetrahydronaphthyl methyl ketone, oxime of.
 Thujamenthoneketolactone, oxime of.
 Thujone, oxime of.
*iso*Thujoneketolactone, oxime of.
p-Toluidino-*p*-toluquinoneoxime.
p-Tolylhydrazoacetaldoxime.
 Trimethylcyclohexanoneoxime.
2:4:4-Trimethylcyclohexanoneoxime.
 Trimethylcyclohexenoneoxime.
2:4:4-Trimethylcyclo- Δ^2 -hexenone-oxime.
 Trimethylcyclopentanoneoximes.
Oximinocamphor, isomeric benzoyl derivatives from (FORSTER), P., 1902, 238.
Oximinocinchomeronimidine and their salts (GABRIEL and COLMAN), A., i, 842.
Oximinocyanooacetic acid, esters, characterisation of, as pseudo-acids (MULLER), A., i, 354.
Oximinodipropyl ketone (PONZIO and BORELLI), A., i, 660.
Oximino- α -hydroxy-butyramide, -hexoamide, and -octoamide (SCHIFF), A., i, 430.
Oximino-ketones, formation of pyrrole derivatives from (KNORR and LANGE), A., i, 821.

a-Oximino-ketones, characteristic reaction of (WHITELEY), P., 1902, 212.

Oximinolactamide and its benzoyl and trichloro- derivatives (SCHIFF), A., i, 430.

Oximinomalondi-alkyl- and -aryl-amides and their salts (WHITELEY), P., 1902, 212.

Oximinomalonic acid, amino-, and its copper salt (SCHIFF), A., i, 430.

Oximinomalon-o-tolyamic acid, ethyl ester (WHITELEY), P., 1902, 212.

Oximino-oxalic acid, amino- (SCHIFF), A., i, 430.

a-Oximinovaleric acid, δ -cyano-, ethyl ester (FISCHER and WEIGERT), A., i, 352.

Oximino-. See also the Parent Substance, *is*nitroso-.

Oxonium salts, constitution of (WERNER), A., i, 686.
 theory (COEHN), A., i, 686.

Oxyamidines, preparation of (LEY), A., i, 445.

3-Oxyaminophenylphenazonium anhydride (KEHRMANN, BECKER, and CAPATINA), A., i, 571.

Oxyazo-compounds, constitution of (HEWITT and AULD), T., 171; P., 1901, 264.

Oxycelluloses (NASTUKOFF), A., i, 13.

4-Oxycopazoline and its salts (GABRIEL and COLMAN), A., i, 841.

Oycotarnine and its salts and bromo-derivative (FREUND and WULFF), A., i, 556.

Oxydases, nature of certain (KASTLE and LOEVENHART), A., i, 514.
 phenolphthalein as a reagent for (KASTLE and SHEDD), A., i, 514.
 qualitative reactions of (POZZI-ESCOL), A., ii, 635.

colorimetric estimation of (KASTLE and SHEDD), A., i, 514; (ALLIOT and POZZI-ESCOL), A., ii, 588.

p-Oxydiethylarsinibenzoic acid and its salts (MICHAELIS and EPPENSTEIN), A., i, 413.

3-Oxy-5:6-diphenyl-1:2:4-triazine (POSNER), A., i, 82; (BILTZ and ARND), A., i, 245.

Oxyfulminic acid, potassium salt (FRANCESCONI and PARROZZANI), A., i, 139.

Oxygen, new method of preparing (JAUBERT), A., ii, 392.
 evolution of, from the decomposition of potassium chlorate in presence of the oxides of manganese (SODEAU), T., 1066; P., 1902, 136.
 specific volume of, at its boiling point (DEWAR), A., ii, 304.

- Oxygen**, quadrivalence of (BROWNING), A., i, 208; (v. BAEYER and VILLIGER), A., i, 355.
quadrivalent, basic properties of (SACKUR), A., i, 384.
 basic properties and quadrivalence of, in the xanthone series (FOSSE), A., i, 171.
 basic properties of (WERNER), A., i, 50; (v. BAEYER and VILLIGER), A., i, 112, 355; (WALDEN), A., i, 169, 554; (WALKER), A., i, 170; (BREDIG), A., i, 230.
 compressibility of, at low pressures (BATTELLI), A., ii, 244.
 supposed anomalous behaviour of, at low pressure (THIESEN), A., ii, 13.
 liquid, variation with temperature of the density and surface energy of (BALY and DONNAN), T., 907; P., 1902, 115.
 some cases of the wandering of, in the molecule (LUTZ), A., i, 596.
 pseudocatalytic carrying of (ENGLER and WÖHLER), A., ii, 127.
 heat developed by the action of, on alkaline pyrogallol (BERTHELOT), A., ii, 4.
 union of hydrogen with (BAKER), T., 400; P., 1902, 40.
 and hydrogen, behaviour of, in presence of water (MARCACCI), A., ii, 392.
 influence of breathing an atmosphere rich in (FALLOISE), A., ii, 149.
 affinity of haemoglobin for (HÜRFNER), A., ii, 671.
 estimation of, in blood (BARCROFT and HALDANE), A., ii, 424.
 dissolved in water, estimation of, colorimetrically, and apparatus for (RAMSAY and HOMFRAY), A., ii, 171.
Oxygenated carbon compounds, structure of, on addition of aluminium haloids (KOHLER), A., i, 446.
Oxygen compounds, organic, compounds of, with ferrocyanic acid, oxalic acid and with phenols (v. BAEYER and VILLIGER), A., i, 356.
4-Oxy-2-methylclopazoline and its platinum-chloride (GABRIEL and COLMAN), A., i, 842.
Oxymethylpyridone and its carboxylic acid, amide, esters, and salts (FEIST), A., i, 489.
Oxymorphone (BOUGAULT), A., i, 638.
 α -Oxy- β -phenyl- γ -benzylbutyrolactone, isomeric α -hydroxy-lactones from (ERLENMEYER), A., i, 543.
 α -Oxy- γ -phenyl- β -benzylidene-butyrolactone, isomeric α -ketolactones from (ERLENMEYER), A., i, 543.
- alloOxyproteic acid* from urine (BONDZYŃSKI and PANEK), A., i, 847.
4:5-Oxy-1-p-tolyl-3:4-dimethyl-1:2:5-osotriazole (PONZIO), A., i, 191.
Ozone, production of (LADENBURG; CHASSY), A., ii, 67.
 preparation of (ARNOLD and MENTZEL), A., ii, 352, 691.
 formation of, by the electric discharge (DE HEMPTINNE), A., ii, 252.
 influence of voltage on the formation of (CHASSY), A., ii, 486.
 potential of (GRÄFENBERG), A., ii, 449.
 spontaneous decomposition of (WARBURG), A., ii, 130.
 action of, on potassium iodide solutions (GARZAROLLI-THURNLACKH), A., ii, 67.
 tests for (ARNOLD and MENTZEL), A., ii, 352, 691; (CHLOPIN), A., ii, 582.
 detection of small quantities of (EMICH), A., ii, 45.
Ozonic acid (v. BAEYER and VILLIGER), A., ii, 650.

P.

- Palmitic acid** from the oil of *Asarum canadense* (POWER and LEES), T., 61; P., 1901, 210.
Palmitylazoimide (DELLSCHAFT), A., i, 142.
Palmitylhydrazide and its benzylidene, hydridyl, propylidene and acyl derivatives (DELLSCHAFT), A., i, 142.
Pancreas, action of peptone and secretin on the (BAYLISS and STARLING), A., ii, 613; (HERZEN and RADZIKOWSKI), A., ii, 614.
 relation between, and spleen (RETTGER), A., ii, 275.
 mechanism of the so-called peripheral reflex secretion of the (BAYLISS and STARLING), A., ii, 275, 613.
 excretion of sodium chloride after extirpation of the (LÉPINE and MALLET), A., ii, 616.
 does the contain an enzyme which resolves dextrose into alcohol and carbon dioxide? (HERZOG), A., ii, 336.
 Papain, action of, on albumoses and caseoses (KURAÉEFF), A., i, 31.
Papaveric acid and its esters, and their conductivity (WEGSCHEIDER), A., i, 618, 619.
Papayotin, fission of albumin by (EMMERLING), A., i, 407, 408.
Papermaking, estimation of the pentosans in the materials used for (KRÖBER and RIMBACH), A., ii, 537.
Paracopaivic acid (TSCHIRCH and KETO), A., i, 167.

- Paraffins**, dielectric constant of (HOR-MELL), A., ii, 118.
 method for calculating possible isomerides of (LOSANITSCH), A., i, 253.
- Paraffins**, nitro-, transformation of (BAMBERGER and RÜST), A., i, 197.
- Paraldehyde**. See under Aldehyde.
- Paradol** and viscid **Acetaladol** (NOWAK), A., i, 260.
- Parasarone**. See under Asarone.
- Paris-blue** (MATUSCHEK), A., i, 272.
- Parthenogenesis**, artificial (HUNTER), A., ii, 32; (LOEE, FISCHER, and NEILSON; GREELEY), A., ii, 151. in Annelids (FISCHER), A., ii, 621.
- Partition coefficients**. See Affinity.
- Pearls**. See Agricultural Chemistry.
- Peat**, pale, composition of molasses from (BORNTRÄGER), A., i, 205; ii, 187. pale, and dark, rapid technical analysis of (BORNTRÄGER), A., ii, 187.
- Peat soil**. See Agricultural Chemistry.
- Pectinase** (LEPOUTRE), A., ii, 467.
- Pectolite** from San Francisco (EAKLE and SCHALLER), A., ii, 213.
- Penicillium brevicaule*. See Arsenic mould.
- Pentacosane** (MABERY), A., i, 734.
- Pentadecane** and dichloro- (MABERY), A., i, 733.
- Pentaerythritol**, tetranitro- (VIGNON and GERIN), A., i, 9.
- Pentamethylbenzene**, action of bromine on (V. KORCZYNSKI), A., i, 274.
- 1:2:2:5:5-Pentamethylpyrrolidine**, and its acetyl derivative, phenylthiocarbamide, and thiocarbamates (PAULY), A., i, 559.
- Pentane**, β -bromo- β -nitroso-, constitution of (PILOTY and STOCK), A., i, 735.
- isoPentane*, action of nitric acid on (PONI), A., i, 581. carbon monoxide, and hydrogen, fractional combustion of (CHARIT-SCHKOFF), A., ii, 702.
- isoPentane*, isomeric tribromo-, action of ethyl sodiomalonate on (IPATIEFF and SWIDERSKI), A., i, 132. bromonitro-, and chloronitro- (MOUSSET), A., i, 254.
- prim.*-nitro-, action of aldehydes, of sodium and halogens, of reducing agents, and of piperidylmethyl alcohol on (MOUSSET), A., i, 254.
- Pentanedicarboxylic acids**. See :— Dimethylglutaric acids.
- Pimelic acid (*isopropylsuccinic acid*). Trimethylsuccinic acid.
- cycloPantanemethylidenecarboxylic acid*, and its ethyl ester, amide and dibromide (SPERANSKI), A., i, 341.
- isoPentanesulphonic acid*, chloride, amide, and anilide (DUGUET), A., i, 428.
- Pentane- $\alpha\beta\delta\epsilon$ -tetra-** and $\alpha\alpha\gamma\gamma\epsilon\epsilon$ - and $\alpha\beta\beta\delta\delta\epsilon$ -hexa-carboxylic acids (GUTH-ZEIT and ENGELMANN), A., i, 743.
- Pentanetricarballylic acids**. See :— $\alpha\beta$ -Dimethylpropanetricarboxylic acid. Dimethyltricarballylic acids.
- Pentane- $\alpha\gamma\delta$ -tricarboxylic acids**. See Hämoticarboxylic acids.
- Pentanetriolone** and its osazone and phenylbenzylhydrazone (RUFF, MEUSER, and FRANZ), A., i, 591.
- cycloPentanolacetic acid*, ethyl ester (SPERANSKI), A., i, 341; (WALLACH and SPERANSKI), A., i, 722, 800.
- $\beta\gamma$ -Pentanolamines**. See Amyl alcohols (*diethylcarbinol*, and *methylpropylcarbinol*), amino-.
- cycloPentanone*, compound of, with benzylideneacetophenone (STOBBE), A., i, 472. condensation of, with ethyl bromoacetate (SPERANSKI), A., i, 341.
- Pentenedicarboxylic acids**. See :— $\alpha\alpha$ -Dimethylglutaconic acid. α -Ethylidene glutaric acid.
- Δ^2 -cycloPentene-1-one-2-ol**. See 1:2-Diketopentamethylene.
- Pentenetetracarboxylic acid**. See :— Ethylcarboxyaconic acid.
- Pentenoic acid** (*angelic acid*), lactones of (THIELE, TISCHBEIN, and LOSSOW), A., i, 155.
- Pentenoic acid** (*dimethylacrylic acid*), amino-, ethyl ester, action of dilute mineral acids (BOUVEAULT and WAHL), A., i, 137.
- Pentinene** (*piperylene*), constitution of (THIELE), A., i, 145.
- Pentosans**, physiological importance of (KÖNIG and REINHARDT), A., ii, 273. estimation of (KRÖBER and RIMBACH), A., ii, 537. estimation of, in the materials used for papermaking (KRÖBER and RIMBACH), A., ii, 537.
- Pentose**, detection of, in urine (BIAL; KRAFT), A., ii, 703. pancreas-proteid-, constitution of (NEUBERG), A., ii, 417.
- Pentoses** in the organism (GRUND), A., ii, 415. formation of lactic acid from (KATSUYAMA), A., i, 257. estimation of (KRÖBER and RIMBACH), A., ii, 537.
- Pepper**, estimation of furfuraldehyde in (HILGER), A., ii, 185.
- Pepsin** (PEKELHARING), A., i, 411. chemical nature of (FRIEDENTHAL and MIYAMOTA), A., i, 655.

- Pepsin**, estimation of, in gastric juice (MEUNIER), A., ii, 236.
- Pepsinic acid** (PEKELHARING), A., i, 411.
- Peptase** (BOKORNY), A., ii, 419.
- Peptic activity**, method of observing (SPRIGGS), A., i, 410.
- Peptone** in the urine (ITO), A., ii, 160.
action of, on the pancreas (HERZEN and RADZIKOWSKI), A., ii, 614.
detection of, in urine (ČERNY), A., ii, 116.
Witte's, dissociation and combination of (SOLLMANN), A., i, 512.
combination of, with formaldehyde (SOLLMANN), A., i, 579.
- Perboric acid**. See under Boron.
- Perchloric acid**. See under Chlorine.
- Peridotite**, altered, in Mysore (HOLLAND), A., ii, 147.
- Period of induction** in the reaction between chlorine and hydrogen (MELLOR), T., 1292; P., 1902, 170.
- Periodic acid**. See Iodic acid.
- Periodic classification of the elements** (BILTZ), A., ii, 201.
law, mathematical expression of the (HARRIS), A., ii, 65.
doubtful points in the application of the (TARUGI and CHECCHI), A., i, 203.
system and the properties of inorganic compounds (LOCKE), A., ii, 497.
table, mathematical expression of the valency law of the (MARTIN), A., ii, 649.
- Peripheral reflex secretion** of the pancreas, mechanism of the so-called (BAYLISS and STARLING), A., ii, 275, 613.
- Peroxides**, function of, in cell-life (CHODAT and BACH), A., ii, 341; (BACH and CHODAT; LOEW), A., ii, 522.
- isoPersulphocyanic acid**. See under Cyanic acid.
- Persulphuric acids**. See Caro's acid and under Sulphur.
- Pertungstic acid**. See under Tungstic acid.
- Pervanadic acid**. See under Vanadic acid.
- Petit grain**, oil of (JEANCARD and SATIE), A., i, 45.
- Petroleum**, use of the peroxide calorimeter for (PARR), A., ii, 432.
Beaumont, occurrence of free sulphur in (RICHARDSON and WALLACE), A., ii, 327.
Galician (ZALOZIECKI and FRASCH), A., i, 197.
- Petroleum**, Italian (BALBIANO and PALADINI), A., ii, 567.
Pennsylvania, hydrocarbons boiling above 216° in (MABERY), A., i, 733.
detection of olefines in light (BALBIANO and PAOLINI), A., ii, 109.
- Petroleums**, synthesis of, and theory of the formation of (SABATIER and SENDRENS), A., i, 581.
specific heat of (MABERY and GOLDSTEIN), A., ii, 549.
- Phanerogamic parasites**. See Agricultural Chemistry.
- Phanerogams**, sucrose in the food reserves of (BOURQUELOT), A., ii, 420.
- Phase rule and Phases**. See Equilibrium.
- Phellandrene** nitrites, reduction of (WALLACH and BÖCKER), A., i, 725.
- Phellandrenolglycuronic acid** (FROMM and HILDEBRANDT), A., ii, 159.
- Phellandrium aquaticum**, carbohydrates in the seeds of (CHAMPOENOIS), A., ii, 282.
- ω-Phenacyl-2:4-diethoxyacetophenone** (HANNACH and v. KOSTANECKI), A., i, 304.
- 4-Phenacyl-3:5-dimethyl-carboxylamide and -isoxazole and its oxime** (MARCH), A., i, 484.
- Phenacylmercury** chloride (DIMROTH), A., i, 851.
- Phenacylnaphthalimidine** and its isomeride and oxime (ZINK), A., i, 34.
- 4-Phenacyl-1-phenyl-3:5-dimethylpyrazole** (MARCH), A., i, 484.
- Phenanthramides**, 3- and 10-(WERNER), A., i, 440.
- Phenanthraquinol**. See 9:10-Dihydroxy-phenanthrene.
- Phenanthraquinone** cyanides, 2- and 3- (WERNER), A., i, 441.
nitrate and sulphate (KEHRMANN and MATTISON), A., i, 229.
- Phenanthraquinone**, amino-derivatives (WERNER), A., i, 440.
bromo- (WERNER), A., i, 629.
nitro-derivatives (WERNER), A., i, 440; (SCHMIDT and KÄMPF), A., i, 797.
- Phenanthraquinonecarboxylic acids**, 2- and 3- (WERNER), A., i, 441.
- Phenanthraquinoneoxime**, benzoyl derivative, compound of, with phenylcarbinide, and methyl ether anhydride (PSCHORR and BRÜGGMANN), A., i, 684.
3-nitro- (SCHMIDT and KÄMPF), A., i, 797.
- 3-Phenanthraquinonesulphonic acid**, its salts and methyl ester (WERNER), A., i, 441.

- Phenanthrazonium chloride and ethyl ψ -oxide (KEHRMANN and HERRMANN), A., i, 568.**
- Phenanthrene (WERNER), A., i, 437, 626.**
- Phenanthrene, 2- and 10-amino-, and their benzoyl, phenylcarbamide, and urethane derivatives (WERNER), A., i, 440.**
- 3-amino- and its isomeride and their acetyl derivative (WERNER), A., i, 440.**
- 3-amino- and 3-nitro- (SCHMIDT), A., i, 29.**
- 9-amino-, and 9:10-diamino-, and its diacetyl derivative (PSCHORR and SCHRÖTER), A., i, 672.**
- Phenanthrene-9-carboxylic acid and its ethyl ester, azoimide and hydrazide (PSCHORR and SCHRÖTER), A., i, 672.**
- Phenanthrenesulphonic acids, 2-, 3-, and 10-, and their methylesters, salts, chlorides and anilides (WERNER), A., i, 437.**
- Phenanthridine methiodide, action of alkalis on (PICTET and PATRY), A., i, 644.**
- Phenanthroic acids, 2-, 3- and 10- (WERNER), A., i, 440.**
- 2-Phenanthrol (PSCHORR and KLEIN), A., i, 97.**
- 3-Phenanthrol, amino-, and its ethers and acetyl derivatives, and nitro-, methyl ether of (WERNER), A., i, 438.**
- Phenanthrols, 2-, 3-, and 10-, and their acetates, benzoates, and ethers (WERNER), A., i, 438.**
- Phenanthrolazobenzenesulphonic acids, 2- and 3- (WERNER), A., i, 438.**
- 3-Phenanthrolquinone (PSCHORR and KLEIN), A., i, 97.**
- 3-Phenanthroxyacetic acid (WERNER), A., i, 438.**
- Phenanthryl cyanides, 2-, 3-, and 10- (WERNER), A., i, 440.**
- 2-Phenanthryl methyl and ethyl ethers (WERNER), A., i, 628.**
- Phenanthrylamines. See Phenanthrene, amino-derivatives.**
- 3-Phenanthryl-phenylcarbamide and -urethane (SCHMIDT), A., i, 29.**
- Phenazole and its methiodide and ethiodide (WOHLFAHRT), A., i, 509.**
- Phenazothione (KEHRMANN and DENGUIN), A., i, 569.**
- Phenazothionium salts (KEHRMANN and VESELY), A., i, 186; (AKTIEN-GESELLSCHAFT FÜR ANILINFABRIKATION), A., i, 496.**
- anhydro-3-sulphanilate (KEHRMANN and VESELY), A., i, 568.**
- Phenazoxone (KEHRMANN and SAAGER), A., i, 235.**
- Phenazoxone, 3:5-diamino-, and its diacetyl derivative (KEHRMANN and THOMAS), A., i, 567.**
- Phenetidine and its homologues, compounds of, with ethyl orthoformate (GOLDSCHMIDT), A., i, 785.**
- Phenetole, critical constants and molecular complexity of (GUYE and MALLETT), A., ii, 243, 303.**
- Phenetylarsenic compounds (MICHAELIS and HILBENZ), A., i, 413.**
- p-Phenetyl- ψ -thiohydantoins, and the acetyl derivative of the labile form and p-phenetylthiohydantoic acid (WHEELER and JOHNSON), A., i, 760.**
- Pheno- α -aminocycloheptane, resolution of, into its optical isomerides; salts of and its benzoyl derivative (KIPPING and HUNTER), T., 574; P., 1902, 60.**
- Phenofluorindine (*homofluorindine*) (NIETZKI and SLABOSZEWCZ), A., i, 126.**
- Phenol, $C_6H_5O_2$, from the oil of *Asarum canadense* (POWER and LEES), T., 60; P., 1901, 210.**
- $C_{10}H_{14}O_2$, from phellandrenolglycuronic acid (FROMM and HILDEBRANDT), A., ii, 159.
- Phenol, absorption spectra of (HARTLEY, DOBBIE, and LAUDER), T., 933; P., 1902, 172.**
- vapour pressure in the system, acetone, water, and (SCHREINEMAKERS), A., ii, 243, 380, 599.
- and indoxyl, formation of, as intermediate metabolic products, and their relation to glycuronic acid excretion (LEWIN), A., ii, 272; (MAYER), A., ii, 520.
- bromide, tribromo- (dibromobenzene ketodibromide) (LEWIS), T., 1001; P., 1902, 177; (KASTLE, LOEVENHART, SPEYER, and GILBERT), A., i, 211.
- bromides, derivatives of (ANSELMINO), A., i, 215.
- Phenol, o-amino-, oxidation products of (DIEPOLDER), A., i, 830.**
- 3-bromo- and 3-chloro-2:4:6-trinitro- (TIJMSTRA), A., i, 717.
- pentachloro-, oxidation of and transformation of, into tetrachloroquinone (BARRAL), A., i, 367.
- 3:6-diiodo-, and its acetate (BRENANS), A., i, 673.
- 2:6-di- and 2:4:6-tri-iodo-, and their ethers, and 2-mono- and 2:6-di-iodo-4-nitro- and their ethers and acetates (BRENANS), A., i, 280.

- Phenol**, *p*-nitro-, action of formaldehyde on (BORSCHE), A., i, 836.
2:4-dinitro-, compound of, with 4:4'-tetramethylidiaminodiphenylmethane (LEMOULT), A., i, 751.
trinitro-. See Picric acid.
2:3:4:6-tetra- and *penta*-nitro- (BLANKSMA), A., i, 442.
4:6-dinitro-2-cyano-, and its derivatives (BLANKSMA), A., i, 281.
o-nitroso-, and its salts (v. BAЕYER and KNORR), A., i, 766.
thio-. See Phenyl mercaptan.
Phenol compounds, bromo-, action of nitric acid on (ROBERTSON), T., 1475; P., 1902, 189.
 ethers, unsaturated, synthesis of (KLAGES), A., i, 609.
 sulphurous esters (BADISCHE ANILIN- & SODA-FABRIK), A., i, 366.
Phenols from shale oil (GRAY), A., i, 605.
 action of bromine and chlorine on (ZINCKE), A., i, 282; (ZINCKE and WIEDERHOLD), A., i, 282, 284; (ZINCKE and TRIPP), A., i, 285; (ZINCKE, SIEBERT, and REINBACH), A., i, 605.
 action of chloroform on (AUWERS and WINTERNITZ), A., i, 218.
 quantitative esterification and estimation of (VERLEY and BÜLSING), A., ii, 54.
 condensation of, with esters of unsaturated acids (RUHEMANN), T., 419; P., 1902, 45.
 compounds of, with organic oxygen compounds, and with pyridine and quinoline (v. BAЕYER and VILLIGER), A., i, 356.
 compounds of, with sodium tetra-azidotolylsulphonate (SEYEWETZ and BIOT), A., i, 509.
 iodine derivatives of (RICHARD), A., i, 280.
ψ-Phenols (AUWERS), A., i, 146; (AUWERS, SCHUMANN, and BROICHER), A., i, 147; (STEPHANI; POLLAK and SOLOMONICA), A., i, 148.
 from salicylaldehyde and salicylic acid (AUWERS and HUBER), A., i, 213.
ψ-Phenols, halogenated, constitution of oxidation products from (AUWERS and SIGEL), A., i, 216.
Phenols, list of. See Alcohols and Phenols.
β-Phenolgalactoside and its tetra-acetyl derivative (FISCHER and ARMSTRONG), A., i, 263.
Phenolglycuronic acid, formation of, in the liver (EMBDEN), A., ii, 677.
o-Phenolmercury hydroxide, internal anhydride of (DIMROTH), A., i, 849.
p-Phenolmercury oxide (DIMROTH), A., i, 849.
Phenolphthalein, titration with, in alcoholic solution (HIRSCH), A., ii, 690.
Phenolphthalein anhydride. See Fluoran.
Phenolphthalin as a reagent for oxydases (KASTLE and SHEDD), A., i, 514.
Phenol-6-sulphonic acid, 4-nitro-2-amino-, and its salts and diazo-compound (BADISCHE ANILIN- & SODA-FABRIK), A., i, 282.
Phenolsulphuric acid, influence of certain poisons on the synthesis of, in the organism (KATSUYAMA), A., ii, 161.
Phenonaphthaacridine, and amino- and its acetyl derivative (ULLMANN), A., i, 119.
1:2-Phenonaphthaacridine, synthesis of (ULLMANN and BAEZNER), A., i, 694.
Pheno-*a*-naphthaxanthhydrol salts (WERNER), A., i, 50.
Phenonaphthazothione (KEHRMANN and DENGUIN), A., i, 569.
Phenoquinone, hexabromo- (KASTLE, LORENTHART, SPEYER, and GILBERT), A., i, 212.
Phenoxyazine, $C_{13}H_{10}O_3N_2$, and its acetyl derivative, from the oxidation of 2-amino-3-methoxyphenol (HENRICH and RHODIUS), A., i, 448.
Phenoxyazines, dinitro-, formation of (CROCKER), A., i, 566.
Phenoxyzone, dinitro- and diamino- and its acyl derivatives (HILLYER), A., i, 50.
ε-Phenoxyamylphthalimide (MANASSE), A., i, 351.
2-Phenoxy-4:6-dimethylpyrimidine and its compound with mercuric chloride (ANGERSTEIN), A., i, 123.
Phenoxydiphenylarsine bromide and chloride (MICHAELIS and WEBER), A., i, 515.
Phenyl ethers, *o*- and *p*-amino- (HAEUSSER and SCHMIDT), A., i, 126.
 mercaptan, 4-bromo-2-nitro-, 4-chloro-2-nitro-, and *o*-nitro- (BLANKSMA), A., i, 281.
 methyl selenide (POPE and NEVILLE), T., 1553; P., 1902, 198.
o-, *m*-, and *p*-tolyl ethers, *o*-nitro-, and their **sulphonic acids** and their salts, and the *o*-amino-derivatives of the *o*- and *m*-ethers (COOK), A., i, 92.
Phenylacetic acid, synthesis of, as a lecture experiment (ZELINSKY), A., i, 675.
 azoimide and hydrazide of (BOETZELLEN), A., i, 58.

- Phenylacetic acid**, chloromethyl ester (DESCUDÉ), A., i, 339.
 ethyl ester, action of sodium benzamide on (TITHERLEY), T., 1531; P., 1902, 187.
- Phenylacetic acid**, amide, and nitrile; *p*-chloro-, compounds of with aromatic amines (v. WALTHER and RAETZE), A., i, 466.
isonitro-, ethyl sodium salt (WISLICENUS and ENDRES), A., i, 541.
- Phenylacetic-benzoic acid**, methylene ester (DESCUDÉ), A., i, 339.
- N*-**Phenylacetimino-ethyl ether hydrochloride** (LANDER), T., 597; P., 1902, 73.
- Phenylacetone**. See Benzyl methyl ketone.
- Phenylacetonitrile (*benzyl cyanide*)**, *iso-nitro*-, and its salts (WISLICENUS and ENDRES), A., i, 541.
- Phenylacetylacetophenone**, condensation of, with resorcinol (BÜLOW and GROTONSKY), A., i, 484.
- Phenylacetyl-*o*-aminoacetophenone** (CAMP), A., i, 178.
- Phenylacetylene**, action of alkyl diazoacetates on (BUCHNER and LEHMANN), A., i, 236.
- Phenylacetylene-methyl- and -trichloromethyl-carbinol** (MOUREU and DESMOTS), A., i, 289.
- Phenyl acetyl nitrogen chloride**, chlorobromonitro- and bromonitro-derivatives of (ORTON), T., 497, 503; P., 1902, 59, 73.
- Phenylacridine** methiodide and its diiodide (DECKER, HOCK, and DJIWONSKY), A., i, 830.
- β -Phenylacrylic acid**. See Cinnamic acid.
- Phenylalanine**, separation of, from amino-acids (SCHULZE and WINTERSTEIN), A., i, 613.
- 5-Phenyl-2-mono- and -di-alkyl-amino-3-methylphenonaphthacridines**, and their dihydro-compounds and salts (ULLMANN, ROZENBAND, MÜHLHAUSER, and GRETHER), A., i, 241.
- 5-Phenyl-2-mono- and -di-alkylamino-phenonaphthaeridines** and their dihydro-compounds and salts (ULLMANN, ROZENBAND, MÜHLHAUSER, and GRETHER), A., i, 241.
- Phenylallophanic acid**, *m*- and *p*-nitro-ethyl esters (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1569.
- Phenylamino-**. See Anilino.
- Phenyldiaminophenazine**, amino- (NIETZKI and SLABOSZEWCZ), A., i, 126.
- β -Phenyl- β -amylene** (KLAGES), A., i, 668.
- Phenyl-*p*-isoamylphenyliodonium salts** (WILLGERODT and DAMMANN), A., i, 19.
- 4-Phenyl-5-aniltriazolone** 3-disulphide, and -3-thiol and its ethers and potassium salt (BUSCH and ULMER), A., i, 575.
- Phenyl-arsenious and -arsenic acids**, esters (MICHAELIS and FROMM), A., i, 411.
- Phenylarsine** (PALMER and DEHN), A., i, 87.
- Phenylauramine** and its hydriodide and methiodides (GRAEBE), A., i, 683.
- 2-Phenyl- ψ -aziminobenzene**, derivatives of (ROSENTHAL and SUAIS), A., i, 406.
- Phenylazoacetaldoxime**, alkylation of (BAMBERGER and FREI), A., i, 324. and its chloro-, benzoyl and phenylcarbamide derivatives (BAMBERGER), A., i, 246, 321, 577; (BAMBERGER and GROB), A., i, 247; (BAMBERGER and FREI), A., i, 248; (VOSWINCKEL), A., i, 321. and its *p*-chloro-, acetyl and picryl derivatives, constitution of (VOSWINCKEL), A., i, 844.
- Phenylazoacetoacetic acid**, ethyl ester, action of diazobenzene on (BAMBERGER and WHEELWRIGHT), A., i, 406.
- Phenylazoacetylacetone** and its nitro-derivatives (BÜLOW and SCHLÖTTERBECK), A., i, 649.
- Phenylazoacetyl-*p*-nitrobenzoylacetic acid**, ethyl ester (BÜLOW and HAIDER), A., i, 327.
- Phenyl-azo- and -hydrazo-alkylaldoximes** (BAMBERGER and FREI), A., i, 404.
- Phenylazo-amino- and -methylamino-crotonic acids**, ethyl esters (PRAGER), A., i, 64, 578.
- Phenylazobenzoyl-*p*-nitrobenzoylacetic acid**, ethyl ester (BÜLOW and HAIDER), A., i, 327.
- Phenylazobenzoylacetac acid**, ethyl ester (BÜLOW and HAIDER), A., i, 327.
- Phenylazo-1:2-diketopentamethylene** (DIECKMANN), A., i, 787.
- Phenylazodioxydiazinecarboxylic acid**, ethyl ester, synthesis of (JOVITSCHITSCH), A., i, 202.
- Phenylazoethylidenenitronic acid**, methyl ester and its chloro-derivatives (BAMBERGER), A., i, 246; (BAMBERGER and GROB), A., i, 247; (BAMBERGER and FREI), A., i, 248.
- Phenylazo-*m*-nitrobenzoylacetic acid**, ethyl ester (BÜLOW and HAIDER), A., i, 327.

- α -Phenylazo- δ -nitrophenylpentane- δ -ol- β -onecarboxylic acid, ethyl ester (PRAGER), A., i, 578.
 α -Phenylazo- δ -*p*-nitrophenylpentane- β -one- $\alpha\beta$ -olide (PRAGER), A., i, 578.
Phenylazoxycetaldoxime, *p*-chloro- (BAMBERGER and GROB), A., i, 248.
Phenylazo-. See also Benzeneazo-.
1-Phenylbenziminoazole and its salts (FISCHER, RIGAUD, and KOPP), A., i, 188.
N-Phenylbenzimino-ethers (LANDER), T., 593; P., 1902, 72.
 γ -Phenyl- α -benzoylacetoacetic acid, ethyl ester (HAILER and BÜLOW), A., i, 327.
 α -Phenyl- γ -benzyl- $\Delta\alpha$ -crotonolactone (THIELE and STRAUS), A., i, 158.
1-Phenylbenzideneptyrrole (FEIST, WIDMER, and SAKOWITSCH), A., i, 491.
Phenylbenzylmethylallylammonium salts, isomeric (HANTZSCH and HORN), A., i, 277.
Phenylbenzyl- ψ -thiohydantoin, constitution of (WHEELER and JOHNSON), A., i, 761.
Phenylbiuret, *o*-, *m*-, and *p*-nitro- (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1568.
Phenylbromomalonic acid, ethyl ester (WHEELER and JOHNSON), A., i, 761.
4-Phenyl-bromo- and -hydro-uracil (FISCHER and ROEDER), A., i, 124.
 α -Phenylbuta- $\Delta\alpha$ - γ -diene (DOEBNER), A., i, 599.
*allo***Phenylbutadiene** and its polymeride (LIEBERMANN and RÜBER), A., i, 669.
and its tetrabromide (KLAGES), A., i, 669.
 α -Phenyl- β -butylene and its dibromide (KLAGES), A., i, 669.
 β -Phenyl- β -butylene and *p*-iodo- (KLAGES), A., i, 667.
Phenyl-*p*-tert. butylphenyliodonium salts (WILLGERODT and RAMPACHER), A., i, 19.
 γ -Phenylbutyronitrile, α -chloro- $\beta\gamma$ -dibromo- (THIELE and SALZBERGER), A., i, 157.
Phenylcarbimide (*phenyl isocyanate*), action of, on esters of some hydroxy-acids (LAMBLING), A., i, 537, 603, 756.
Phenylcarboxyaconic acid, ethyl ester (RUHEMANN), T., 1214; P., 1902, 181.
Phenyl- α -chloroacetic acid, *p*-chloro- (V. WALThER and RAETZE), A., i, 466.
 α -Phenyl-*p*-chlorocinnamonnitrile, and *p*-nitro- (V. WALThER and RAETZE), A., i, 467.
Phenylchloromethylene camphor (FORSSTER), P., 1902, 237.
- Phenylcinnamic acid**, esters (BAKUNIN), A., i, 370.
Phenyl-crotononitrile and $\Delta\alpha$ -crotonolactone and its isomeride (THIELE and SALZBERGER), A., i, 157.
1-Phenyl-2- ψ -cumyliminoxanthine (TSCHUGAEFF), A., i, 605.
 α -Phenyl- $\gamma\gamma$ -diamylthiolbutane- α -al (POSNER), A., i, 221.
Phenyldianisylmethane (FEUERSTEIN and LIPP), A., i, 768.
Phenyldiazomethane (HANTZSCH and LEHMANN), A., i, 325.
 α -Phenyl- β -diazoo-3-methoxy cinnamic acid (PSCHORR and SEYDEL), A., i, 97.
 α -Phenyl- $\gamma\gamma$ -dibenzylsulphonebutane- α -al (POSNER), A., i, 221.
Phenyldicarbylamine, combination of, with primary amines, and with sulphur, and its oxidation (SABANÉEFF, RAKOWSKY, and PROSIN), A., i, 604.
Phenyl- ψ -cumylarsenic compounds (MICHAELIS and ROTTER), A., i, 523.
Phenyldiethylarsenic compounds (MICHAELIS and ULRICH), A., i, 412.
Phenyldihydrophenazine (KEHRMANN, BECKER, and CAPATINA), A., i, 570.
4-Phenyl-dihydro-2-picolone and its β -carboxylic acid (KNOEVENAGEL and BRUNSWIG), A., i, 641.
Phenyldihydropinene, synthesis of (KONOWALOFF), A., i, 386.
5-Phenyl-2-dimethylamino-3-methyl-pheno- $\alpha\beta$ -naphthacridine (ULLMANN), A., i, 500.
Phenyldimethyl diaminophenotolazo-oxonium chloride (MÖHLAU, KLIMMER, and KAHL), A., i, 840.
1-Phenyl-4-dimethylhydouracil (SLIMMER), A., i, 207.
5-Phenyl-3:5-dimethylphenonaphth-acridol, 2-amino-, and its acetyl derivative (ULLMANN, RACOVITZA, and ROZENBAND), A., i, 240.
1-Phenyl-3:5-dimethylpyrazole-4-acetic acid and its methyl ester and copper salt (MARCH), A., i, 706.
1-Phenyl-3:5-dimethylpyrazole-4- α - and - β -propionic acids (MARCH), A., i, 706.
1-Phenyl-2:3-dimethyl-5-pyrazolone and its derivatives, compounds of, with methyl aminohydroxybenzoates (EINHORN), A., i, 497.
1-Phenyl-2:3-dimethylpyrazolone, 5-thio- (MICHAELIS), A., i, 120.
See also Antipyrine, thio-.
1-Phenyl-2:5-dimethylpyrrole-3-carboxylic acid and its ethyl ester (FEIST), A., i, 489.
1-Phenyl-2:4-dimethyl-semicarbazide and -urazole (BUSCH), A., i, 501.

- 1-Phenyl-2:7-dimethylxanthen** (FEUERSTEIN and LIPP), A., i, 769.
- Phenyl-di-p-tolylarsenic compounds** (MICHAELIS and LAUTERWALD), A., i, 519.
- 3-Phenyl-2:6-di-p-tolyltetrahydro-1:4-pyrene** (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- Phenyl-di-m-xylylarsenic compounds** (MICHAELIS and ROTTER), A., i, 522.
- p-Phenylenediaminodi-p-chlorobenzyl cyanide** (v. WALTHER and RAETZE), A., i, 467.
- Phenylenediamine nitrate**, action of aluminium chloride on (GABUTTI), A., i, 312.
- m-Phenylenediamine**, methylation of (MORGAN), T., 655; P., 1902, 87.
- m-Phenylenediamine**, 2:5-dichloro, and its acyl derivatives, and the action of diazonium salts on (MORGAN and NORMAN), T., 1382; P., 1902, 185.
- 4:6-dinitro-** (BLANKSMA and MEERUM TERWOGT), A., i, 715.
- nitroso-** (TÄUBER and WALDER), A., i, 118.
- p-Phenylenediamine**, chloro-, and its salts, and diacetyl and dibenzoyl derivatives (COHN), A., i, 442.
- m-Phenylenediamine-5-carboxylic acid**, 3-chloro-. See Benzoic acid, 2-chloro-4:5-diamino.
- m-Phenylenediacetylamine**, and **p-Phenylenediacetylamine** and its tetrabromide (KAUFLER), A., i, 278.
- p-Phenylenediamine hydrobromide** and 2:6-dibromo-(JACKSON and CALHANE), A., i, 645.
- m-Phenylene-1:3-dimethyldinitroamine**, 2:4:6-trinitro- (BLANKSMA and MEERUM TERWOGT), A., i, 715.
- Phenylethenylanilanthranilic anhydride** (v. NIEMENTOWSKI), A., i, 614.
- Phenylethyldianthranilic acid** and anhydride, and their salts (v. NIEMENTOWSKI), A., i, 614.
- Phenylethenylhydrazidine** and its hydrochloride and *p*-chloro-derivative, constitution of (VOSWINCKEL), A., i, 844.
- α-Phenyl-α-ethoxy-β-nitro-mono- and -di-bromoethanes**, *o*- and *p*-nitro-(FLÜRSHEIM), A., i, 671.
- β-Phenylethylamine** and its hydrobromide and compounds with metallic haloids (JORDAN), A., i, 58.
- β-Phenylethylecarbamic acid**, ethyl ester (JORDAN), A., i, 58.
- Phenylethylenedisulphone**, *di-p*-bromo- and *di-p*-chloro- (TRÖGER and BUDDE), A., i, 776.
- γ-Phenylethylenephendithiobiuret** (WHEELER and MERRIAM), A., i, 538.
- γ-Phenyl-γ-ethylideneepyrotartaric acid** and its salts (STOBBE and NIEDENZU), A., i, 460.
- 2-Phenyl-1-ethylindole** and 5-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- γ-Phenyl-γ-ethyl-itaconic acid and -iso-itaconic acid** and their calcium salts (STOBBE and NIEDENZU), A., i, 460.
- Phenyl ethyl ketone** and its semicarbazone (BLAISE), A., i, 164.
- Phenylethylmercaptole** (BLANKSMA), A., i, 282.
- Phenylethyldithiocarbamic acid**, ammonium salt (DELÉPINE), A., i, 702.
- Phenyl formazyl ketone** (BAMBERGER and WITTER), A., i, 406.
- Phenyl galactoside- and -glucosido-galactosazone** (FISCHER and ARMSTRONG), A., i, 746.
- β-Phenylglutaconic anhydride** (BUCHNER and SCHRODER), A., i, 319.
- β-Phenylglutaranil**, *p*-nitro- (AVERY and BEANS), A., i, 679.
- β-Phenylglutaranilic acid** (VORLÄNDER), A., i, 310.
- β-Phenylglutaranilic acid**, *m*- and *p*-nitro- (AVERY and GERE; AVERY and BEANS), A., i, 679.
- α-Phenylglutaric acid** and its salts and γ-acetyl derivative (FICHTER and MERCENKES), A., i, 160.
- β-Phenylglutaric acid** and its imide and semipiperide (VORLÄNDER), A., i, 310.
- β-Phenylglutaric acid**, *p*-mono- and 2:4-*d*-amino-, *o*- and *p*-mono- and 2:4-*d*-nitro-, and 2-nitro-4-amino, and their methyl esters (SCHROETER and MEERWEIN), A., i, 544.
- and its salts and anhydride, *m*-nitro- (AVERY and GERE), A., i, 679.
- and its salts, dimethyl ester, and anhydride, *p*-nitro- (AVERY and BEANS), A., i, 679.
- Phenylglycine**, azo-dyes from (MAI), A., i, 250.
- Phenylglycine-*o*-carboxylic acid** (VORLÄNDER and v. SCHILLING), A., i, 94; (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 367.
- acyl derivatives and their esters (VORLÄNDER, MUMME, and WANGERIN), A., i, 454.
- N*-alkyl derivatives of, and their esters (VORLÄNDER and MUMME), A., i, 451.
- Phenylglycine-*o*-carboxylic acid**, ethyl esters (CHEMISCHE FABRIK VON HEYDEN), A., i, 289.

- Phenylglycine-*o*-carboxylic acid**, diethyl ester, action of chlorocarbonates on (FARBWERK MÜHLHEIM VORM. A. LEONHARDT & Co.), A., i, 456.
- acyl derivatives of (BADISCHE ANILIN- & SODA-FABRIK), A., i, 452.
- triethyl ester (BADISCHE ANILIN- & SODA-FABRIK), A., i, 452.
- Phenylglycine-*o*-carboxylic acid**, nitroso- (VORLÄNDER and v. SCHILLING), A., i, 451.
- and its diethyl ester (VORLÄNDER, MUMME, and WANGERIN), A., i, 454.
- Phenylglycinehydroxamic acid** and its sodium salt and acetyl derivative (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1574.
- Phenylglycolic acid**, phenylurethane of, and its salts (LAMBLING), A., i, 537.
- Phenylglyoxime**, *p*-bromo- and *p*-chloro- (COLLET), A., i, 625.
- Phenyl group**, migration of the, in styrene and its derivatives (TIFFENEAU), A., i, 666.
- α-Phenyl-β-heptynol alcohol** (MOUREU and DESMOTS), A., i, 289.
- β-Phenyl-β-isoheptylene** (KLAGES), A., i, 668.
- Phenylcyclohexane** and its derivatives (KURSANOFF), A., i, 20.
- Phenylcyclohexane**, *p*-nitro-, and *p*-amino- and its salts and acetyl derivative (KURSANOFF), A., i, 20.
- See also Hexamethylbenzene.
- Phenylhydantonitrile** (KLAGES), A., i, 355.
- Phenylhydrazine**, action of, on acylthiocarbamic and acyliminothiocarbonic esters (WHEELER and BEARDSLEY), A., i, 502.
- action of formaldehyde on (GOLD-SCHMIDT), A., i, 716.
- biological character of (LEWIN), A., i, 67 ; ii, 160.
- Phenylhydrazine**, 4:6-dinitro-2-cyano- (BLANKSMA), A., i, 281.
- Phenylhydrazine-*p*-sulphonic acid**, additive compounds of, with aldehydes (BILTZ, MAUÉ, and SIEDEN), A., i, 571.
- Phenylhydrazoacetaldoxime** and its chloro-derivatives and their hydrochlorides (BAMBERGER), A., i, 246, 577 ; (BAMBERGER and GROB), A., i, 247 ; (BAMBERGER and FREI), A., i, 248, 404.
- Phenylhydrazoacetaldoxime**, *p*-chloro-, constitution of (VOSWINCKEL), A., i, 844.
- Phenylhydrazone**s, electrolytic reduction of, in sulphuric acid (TAFEL and PFEFFERMANN), A., i, 498.
- 3-Phenyl-1-hydridone-2-acetolactone** and its semicarbazone (STOBBE and VIEWIG), A., i, 542.
- Phenylhydroxycarbamide** and its methyl and ethyl derivatives (FRANCESCONI and PARROZZANI), A., i, 140.
- Phenylhydroxylamine**, 3:5-dinitro- (COHEN and DAKIN), T., 29 ; P., 1901, 214.
- 4:6-dinitro-2-cyano- (BLANKSMA), A., i, 281.
- nitroso-, affinity constant of (HANTZSCH and BUCHNER), A., i, 209.
- Phenylhydroxymethylenecamphor** (FORSTER), P., 1902, 237.
- Phenylhydroxyoxamide** and *o*-, *m*-, and *p*-nitro-, and their salts and acetyl derivatives (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1567 ; P., 1902, 197.
- Phenyliminobenzophenone** and its salts, constitution of (GRAEBE), A., i, 683.
- Phenyliminoquinonediazomide** (HANTZSCH), A., i, 324.
- 2-Phenylindole**, and its 5-chloro-, 5-mono- and 1:5-di-methyl-, and 5-methyl-1-ethyl-derivatives (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- 3-Phenyl-1-indone-2-acetic acid** and its salts, semicarbazone, and ethyl ester (STOBBE and VIEWIG), A., i, 542.
- 10-Phenyl-*γ*-indophenazine** (BURACZEWSKI and MARCHLEWSKI), A., i, 121.
- Phenylliodonitrophenylidonium** hydroxide and salts, iodonitro- (WILLGERODT and ERNST), A., i, 18.
- d-Phenylitamic acid**, salts (KREUTZ), A., i, 463.
- Phenylleucaramine**, *p*-nitro- (GUYOT and GRANDERYE), A., i, 398.
- 4-Phenyllutidinedicarboxylic acid**, *p*-chloro- and its ethyl ester and dihydro-compound (v. WALTHER and RAETZE), A., i, 467.
- Phenyl-2:4-lutidylalkine**, *p*-amino- and *p*-nitro-, and their salts (KNICK), A., i, 825.
- β-Phenylmaltoside** (FISCHER and ARMSTRONG), A., i, 746.
- Phenylmaltozacone**, *p*-bromo- (FISCHER and ARMSTRONG), A., i, 745.
- Phenylmelibiosazole**, *p*-bromo- (FISCHER and ARMSTRONG), A., i, 746.
- Phenylmercury acetate** and chloride, and their *o*- and *p*-amino-derivatives and *o*-nitro- of the chloride (DIMROTH), A., i, 656 ; (PESCI), A., i, 849.
- Phenylmethanebis-2:4-and-2:5-dimethyl-pyrrole-3-carboxylic acids**, ethyl esters and nitro-derivatives (FEIST, WIDMER, and SAKOWITSCH), A., i, 490.

- 5-Phenyl-10-methylacridine** toluene-sulphinate (HANTZSCH and HORN), A., i, 312.
1-Phenyl-3-methylbenzimidazoleol (FISCHER, RIGAUD, and KOPP), A., i, 188.
 α -Phenyl- γ -methyl- $\alpha\gamma$ -butadiene (KLAGES), A., i, 669.
5-Phenyl-3-methyl-5:12-dihydrophenonaphthaacridine, 2-amino- (ULLMANN, RACOVITZA, and ROZENBAND), A., i, 240.
Phenylmethylethenylhydrazidine, constitution of (VOSWINCKEL), A., i, 845.
Phenylmethylethylhydantoin (SLIMMER), A., i, 207.
3-Phenyl-5-methylfuran and its 2:4-dicarboxylic acid (BUCHNER and SCHRÖDER), A., i, 319.
Phenylmethylethyldine, azo-dyes from (MAI), A., i, 249.
5-Phenyl-3-methylecyclohexane-3-ol-1-one: 4:6-dicarboxylic acid, isomeric ethyl esters (RABE and ELZE), A., i, 710.
2-Phenyl-1-methylindole, 5-chloro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
Phenylmethylmercaptole, 4-bromo-2-nitro-, 4-chloro-2-nitro-, and *p*-nitro- (BLANKSMA), A., i, 282.
Phenylmethylnitroamine, 2:4:6- and 4:2:6-bromodinitro-, and 2:6:4- and 2:4:6-dibromonitro- (BLANKSMA), A., i, 600.
 α -Phenyl- γ -methyl- $\alpha\gamma$ -pentadiene (KLAGES), A., i, 669.
5-Phenyl-3-methylpheno- $\alpha\beta$ -naphthacridine, 2-amino- (ULLMANN), A., i, 499.
and its salts and their acetyl derivatives (ULLMANN), A., i, 55 ; (ULLMANN, RACOVITZA, and ROZENBAND), A., i, 240.
and *m*-nitro-, and the acetyl derivative of the amino-compound (ULLMANN), A., i, 56 ; (ULLMANN, RACOVITZA, and ROZENBAND), A., i, 240.
 β -Phenyl- β -methyl- β -phenylethyl phenyl ketone, thio- (POSNER), A., i, 297.
Phenylmethylpropylcarbinol and its chloro-derivative (KLAGES), A., i, 668.
1-Phenyl-3-methylpyrazole, 5-chloro-4-bromo-, methiodide of (MICHAELIS and BINDEWALD), A., i, 317.
3-Phenyl-5-methylpyrazole-1-carboxylamide (POSNER), A., i, 83.
1-Phenyl-3-methylpyrazolone, condensation of, with *p*-nitroso-dimethyl- and -diethyl-aniline (SACHS and BARSCHALL), A., i, 503.
3-Phenyl-5-methyl-pyridazine, -pyridazinone, and -pyridazone, and the salts and 6-chloro-derivative of the pyridazine (OPPENHEIM), A., i, 187.
6-Phenyl-2-methylpyridine, action of aldehydes on (THORAUSCH), A., i, 234 ; (OLLENDORFF), A., i, 827.
action of *p*-tolualdehyde on (DIERIG), A., i, 826.
2-Phenyl-4-methylpyrimidine and its salts (SCHMIDT), A., i, 499.
4-Phenyl-6-methyl-1:2-pyrone-5-carboxylic acid and 3-bromo-, ethyl esters (BUCHNER and SCHRÖDER), A., i, 319.
3-Phenyl-5-methylpyrrole, 4-acyl derivatives, and -4-carboxylic acid and its ethyl ester (KNORR and LANGE), A., i, 821.
Phenylmethylselenetine salts, *d*- and *l*- (POPE and NEVILLE), T., 1553 ; P., 1902, 198.
6-Phenyl-*p*-methyl-2-stilbazole and -2-stilbazoline and their salts (DIERIG), A., i, 827.
s-Phenylmethylsuccinic acid and its salts (RUHEMANN), T., 1216 ; P., 1902, 181.
5-Phenyl-10-methylthioacridol and its phenyl ether (HANTZSCH and HORN), A., i, 311.
Phenylmethyl-*d*-thiocarbamic acid, ammonium salt (DELÉPINE), A., i, 702.
1-Phenyl-3-methyl-5-thiomethyl-pyrazole (MICHAELIS and BINDEWALD), A., i, 317.
1-Phenyl-2-methyl-2:5-thiopyrazole and its derivatives (MICHAELIS and BINDEWALD), A., i, 317.
1-Phenyl-5-methyl-1:2:3-triazole and its 4-carboxylic acid and its salts and esters (DIMROTH), A., i, 403.
1-Phenyl-5-methyl-1:2:4-triazole 3-mercaptan (WHEELER and BEARDSLEY), A., i, 503.
2-Phenylnaphthalene-1:7-dicarboxylic acid and anhydride (GRAEBE and GNEHM), A., i, 679.
Phenyl naphthalidomethyl ketone and its oxime, phenylhydrazone, methyl ester, and oxamino-oxime anhydride (ZINK), A., i, 34.
Phenyl- β -naphthylamine-6-sulphonic acid (BADISCHE ANILIN- & SODA-FABRIK), A., i, 91.
Phenyl- α -naphthylmethylbromide, -acetamide, -benzamide, -thiocarbamides, and -thiocarbimide (WHEELER and JAMIESON), A., i, 762.
Phenyl- α -naphthylmethylphenylsemi-thiocarbazide (WHEELER and JAMIESON), A., i, 763.

- Phenylnitroamine**, affinity constant of (HANTZSCH and BUCHNER), A., i, 209.
Phenylnitrocinnamic acids, esters (BAKUNIN), A., i, 370.
6-Phenyl-o-nitro-2-β-hydroxyphenethyl-pyridine and its salts (THORAUSCH), A., i, 235.
Phenylnitrosoamine, 2:4:6-tribromo- (HANTZSCH and POHL), A., i, 843.
Phenylisomitosoglycine, ethyl ester, synthesis of (JOVITSCHITSCH), A., i, 202.
6-Phenyl-2-o- and -m-nitrostilbazole and their salts (THORAUSCH), A., i, 234.
α-Phenyl-β-octinyl alcohol (MOUREU and DESMOTS), A., i, 289.
Phenyloxamic acid, *o*- and *p*-nitro-, ethyl esters (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1568.
2-Phenyloxazolidine and its 3-methyl and 3-isobutyl derivative (KNORR and MATTHES), A., i, 56.
Phenoxyarylsinodiarboxylic acids (MICHAELIS), A., i, 520.
Phenylparaconic acid, resolution of, into its active isomericides, and their salts (KREUTZ), A., i, 462.
Phenyl-2-phenanthrylamine (WERNER), A., i, 440.
Phenylphenonaphthacridine derivatives (ULLMANN), A., i, 55, 56, 499, 500 ; (ULLMANN, RACOVITZA, and ROZENBAND ; ULLMANN, ROZENBAND, MÜHLHAUSER, and GRETER), A., i, 240.
Phenylphenyl-. See Diphenyl.
Phenylphthalamic acid, nitro-derivative of (KUHARA and FUKUI), A., i, 35.
Phenylphthalimides, *s*- and *α*- (KUHARA and FUKUI), A., i, 34.
Phenyl-2-picolyalkine. See *β*-Hydroxy-*β*-phenyl-2-ethylpyridine.
6-Phenyl-2-picoly-p-nitrophenylalkine. See *β*-Hydroxy-*β*-phenyl-2-ethyl-6-phenylpyridine, *p*-nitro-.
6-Phenyl-2-piperonylalkidine and its salts (THORAUSCH), A., i, 234.
β-Phenylpropaldehyde and its semicarbazone (TIFFENEAU), A., i, 433.
α-Phenylpropane-αγ-tricarboxylic acid, ethyl ester (FICHTER and MERCKENS), A., i, 160.
Phenylpropionic acid, preparation of (MICHAEL), A., i, 32.
Phenylpropionic acid, azoimide and hydrazide of (JORDAN), A., i, 57.
β-Phenylpropionic acid (*hydrocinnamic acid*) salts (MICHAEL), A., i, 33.
Phenyl propionyl nitrogen bromide and chloride, bromo-derivatives of (CHATTAWAY), T., 816 ; P., 1902, 113.
Phenyl propionyl nitrogen bromide and chloride, chloro-derivatives of (CHATTAWAY), T., 639 ; P., 1902, 64.
Phenyl-*n*- and -*iso*-propylhydantoins (SLIMMER), A., i, 206.
Phenyl-*n*-propyl ketone and its oxime, phenylhydrazone, semicarbazone, and hydrochloride (SORGE), A., i, 380.
1-Phenylpyrazole, 5-chloro-, methiodide of (MICHAELIS and BINDEWALD), A., i, 317.
5-(or 3)-Phenylpyrazole and its amino-, tribromoamino-, and nitro-derivatives and their salts ; and the acyl, benzylidene, and thiocarbamide compounds of the amino-derivative (BUCHNER and HACHUMIAN), A., i, 236.
Phenylpyrazolecarboxylic acid, 5:3- or 3:5-, and its esters (BUCHNER and LEHMANN), A., i, 236.
4-Phenylpyrazole-3:5-dicarboxylic acid ethyl ester (BUCHNER and SCHRÖDER), A., i, 319.
 and its methyl ethyl ester (BUCHNER and VON DER HEIDE), A., i, 236.
Phenylpyridazine and its methiodide (POPPENBERG), A., i, 61.
3-Phenylpyridine-2:6-dicarboxylic acid and its anhydride, and monamide, and salts (MARCKWALD and DETTMER), A., i, 235.
6-Phenyl-2-pyridylacrylic acid and its platinichloride (OLLENDORFF), A., i, 828.
2-Phenylpyrimidine, 5-bromo- and 5-chloro- (KUNCKELL and V. ZUMBUSCH), A., i, 835.
2-Phenylpyrimidine-6-carboxylic acid, 5-amino-, and its hydrochloride, and 5-bromo- and 5-chloro- and their benzamidine derivatives and barium salts (KUNCKELL and V. ZUMBUSCH), A., i, 835.
1-Phenylpyrrole and its 2-mono- and 2:5-di-carboxylic acids and their salts, and esters of the mono-acid (PICTET and STEINMANN), A., i, 562.
3-Phenylpyrrole-4-carboxylo-5-acetic acid, dimethyl ester (KNORP and LANGE), A., i, 821.
3-Phenylquinolineazone, and its 2-methyl and 2-ethyl derivatives (JETTELES), A., i, 62.
Phenylsemicarbazidedicarboxylic acid, ethyl ester (ACREE), A., i, 242 ; (WHEELER and BEARDSLEY), A., i, 503.
4-Phenylsemithiocarbazide, *p*-chloro- (BUSCH and ULMER), A., i, 575.
6-Phenylstilbazole, 2-*p*-nitro- and its salts (OLLENDORFF), A., i, 827.

- Phenylsuccinimide** and its alkyl substituted derivatives, stability of (GILBODY and SPRANKLING), T., 802; P., 1900, 225.
- Phenylsulphoneacetic acids**, *p*-bromo- and *p*-chloro-, and their ethyl esters (TRÖGER and BUDDE), A., i, 776.
- Phenylsulphone-ethyl alcohol**, *p*-bromo- and *p*-chloro- (TRÖGER and BUDDE), A., i, 776.
- β-Phenylsulphone-β-methyl-β-phenylethyl phenyl ketone** (POSNER), A., i, 298.
- β-Phenylsulphone-β-phenylethyl methyl ketone** (POSNER), A., i, 297.
- α-Phenylsulphone-β-phenylethyl phenyl ketone** (POSNER), A., i, 297.
- Phenyl tetrahydronaphthyl ketone** and its oximes (SCHARWIN), A., i, 626.
- Phenyltetrazolythiocarbamide** (RUHEMANN and STAPLETON), T., 262.
- Phenyldithiocarbazinic acid**, methylene and pentamethylene esters (BUSCH and LINGENBRINK), A., i, 573.
- Phenylthiocyanoacetic acid**, ethyl ester (WHEELER), A., i, 28.
- Phenylthiocyanomalonic acid**, ethyl ester (WHEELER and JOHNSON), A., i, 761.
- Phenylthiodiazolinethiolmethyleneester** (BUSCH and LINGENBRINK), A., i, 573.
- Phenyl-ψ-thiohydantoin**, constitution of (WHEELER and JOHNSON), A., i, 762.
- Phenyl-ψ-thiohydantoins**, labile and stable, and their salts and acetyl derivatives (WHEELER and JOHNSON), A., i, 759.
- α-Phenyl-α-thiophencarbamide** (CURTIUS and THYSSEN), A., i, 305.
- Phenyl-*p*-tolylarsenic compounds** (MICHAELIS and PREDARI), A., i, 516.
- 1-Phenyl-2-*o*-tolyl-3-ethylimino-xanthide** (TSCHUGAEFF), A., i, 605.
- Phenyl-*o*- and *p*-tolylguanidines** (WHEELER and BAUER), A., i, 445.
- Phenyl-*p*-tolyliodonium salts** (PETERS), T., 1353; P., 1902, 184.
- Phenyl-*p*-tolylmethyl bromide** (WHEELER and JAMIESON), A., i, 762.
- Phenyl-*p*-tolylmethyl-acetamide, -thiocarbamides, and -thiocarbimide** (WHEELER and JAMIESON), A., i, 762.
- 1-Phenyl-3-*p*-tolyloxyformamidine** and its copper salt (LEY), A., i, 445.
- 5-Phenyl-1-*p*-tolyl-1:2:4-triazole 3-mercaptan** (WHEELER and BEARDSLEY), A., i, 503.
- Phenyltriazan**, derivatives of (WOHL and SCHIFF), A., i, 578.
- 1-Phenyl-1:2:3-triazole** (DIMROTH), A., i, 403.
- 1-Phenyl-1:2:3-triazole-4- and -5-carboxylic acids**, and their salts and esters, and 1-amino- and 1-nitro-derivatives (DIMROTH), A., i, 403.
- Phenyltrimethylenedicarboxylic acid** and its salts and anhydride (RUHEMANN), T., 1215; P., 1902, 18.
- Phenyl-ψ-trimethylenedithiobiuret** (WHEELER and MERRIAM), A., i, 538.
- 1-Phenyl-3:4:5-trimethylpyrazole** (POSNER), A., i, 83.
- Phenyluracil**, synthesis of (FISCHER and ROEDER), A., i, 124, 188.
- Phenylurazole**, constitution of (ACREE), A., i, 242; (BUSCH), A., i, 321, 501.
- Phenyl *p*-xylyl ketone** and its oxime (STRZELECKA), A., i, 470.
- Philiothion**, de Rey-Pailhade's, identity of, with Loew's catalase (POZZI-ESCOL), A., i, 513.
- Phloridzin**, influence of, on the elimination of sodium chloride (LÉPINE and MALLET), A., ii, 617.
- diabetes**. See Diabetes, phloridzin.
- Phloroglucinol** and its trimethyl ether, absorption spectra of (HARTLEY, DOBBIE, and LAUDER), T., 929; P., 1902, 171.
- methyl ethers, chloro-derivatives of (KASERER), A., i, 771.
- Phloroglucinol**, halogen derivatives of (HERZIG and KASERER; KASERER), A., i, 771.
- tribromo, decomposition of (HERZIG and KASERER), A., i, 771.
- Phloroglucinolcarboxylic acid** and its methyl ethers, and their methyl esters (HERZIG and WENZEL), A., i, 463.
- Phoenicein and Phoenin** (KLEEREKOPER), A., i, 48, 111.
- Phonolites** of Spitzberg, Bohemia (TRENKLER), A., ii, 332.
- Phorone** and *iso*Phorone (TITHERLEY), T., 1526; P., 1902, 187.
- Phosgene**. See Carbonyl chloride.
- Phosphates**. See under Phosphorus and Agricultural Chemistry.
- "**Phosphin**," constitution of (ULLMANN and MARÍC), A., i, 183.
- Phosphine**. See Hydrogen phosphide.
- Phosphomannitic acid** and its salts (PORTES and PRUNIER), A., i, 526.
- Phosphonium chloride**, the condition diagram for (TAMMANN), A., ii, 69.
- Phosphorescence** of long duration, theory of (DE VISSER), A., ii, 237.
- Phosphorus**, allotropy of (WEGSCHEIDER and KAUFLER), A., ii, 17.
- red (SCHENCK), A., ii, 205.
- effect of temperature and moisture on the emanation of (BARUS), A., ii, 59.

- Phosphorus**, mixtures of, with sulphur below 100° (BOULOUCH), A., ii, 560.
nutrition of plants with (SCHLESING), A., ii, 220.
metabolism of, in *Herbivora* (TANGL), A., ii, 272.
poisoning by, fat-transference in (KRAUS and SOMMER), A., ii, 342.
compounds of, with selenium (MEYER), A., ii, 393.
- Phosphorus** haloids, action of, on dihydroresorcins (CROSSLEY and LE SUEUR), P., 1902, 238.
trichloride, action of, on organic acids (DELACRE), A., i, 527.
action of, on glycerol and on glycol (A. and L. LUMIÈRE and PERRIN), A., i, 9; (CARRÉ), A., i, 338.
pentachloride, action of, on aniline (GILPIN), A., i, 700.
- Phosphoryl** chloride and bromide, determination of the molecular weight of, by the boiling point method (ODDO), A., ii, 6.
and its derivatives, molecular configuration of (CAVEN), T., 1362; P., 1901, 26.
molecular weight of, in benzene (ODDO), A., ii, 6; (CIAMICIAN), A., ii, 123.
- Phosphorus suboxide** (BROWNING), P., 1901, 243.
- Phosphoric oxide**, vapour density of (WEST), T., 928; P., 1902, 138.
- Phosphorus tetroxide** (*phosphorophosphoric oxide*) (WEST), T., 923; P., 1901, 138.
- Phosphorus acids:**—
- Hypophosphorous acid**, compounds of, with molybdenum oxide (MAWROW), A., ii, 25, 144.
 - Phosphorous acid**, esterification of, by glycerol and glycol (CARRÉ), A., i, 131.
 - Phosphoric acid** in wines (PATUREL), A., ii, 284.
rôle of, in wine analysis (WOY), A., ii, 105.
acidimetry of (BERTHELOT), A., ii, 255.
excretion of, in flesh and vegetable feeders (BERGMANN), A., ii, 276.
compounds of, with aromatic aldehydes and esters (RAIKOW and SCHTARBANOW), A., i, 228.
compounds of, with aromatic ketones (KLAGES), A., i, 624.
esters, from egg-albumin (BECHHOLD), A., i, 331.
influence of potassium ferrocyanide on the precipitation of, by molybdate solution (LEUBA), A., ii, 585.
- Phosphorus acids:**—
- Phosphoric acid**, estimation of citrate-insoluble (HARRIS), A., ii, 353.
estimation of, by gasometric method (RIEGLER), A., ii, 104.
estimation of total, in basic slags (ASCHMAN), A., ii, 627.
estimation of, in organic substances (RIEGER), A., ii, 225.
estimation of, in phosphates (MULLER), A., ii, 174.
See also Agricultural Chemistry.
 - Phosphates**, localisation of, in the sugar cane (SPRANKLING), T., 1543; P., 1902, 196.
insoluble, formation of, by double decomposition (BERTHELOT), A., ii, 256.
significance of, in natural waters (WOODMAN), A., ii, 702.
action of hydrogen peroxide on (PETRENKO), A., ii, 316.
See also Agricultural Chemistry.
 - Metaphosphoric acid**, rate of hydration of (J. C. and F. C. BLAKE), A., ii, 197.
compounds of, with proteids (FULD), A., i, 511.
 - Tri- and Hexa-metaphosphates** (WEISLER), A., ii, 17.
 - Pyrophosphoric acid**, acidity and heat of solution of (GIRAN), A., ii, 549.
velocity of hydration of (MONTEMARTINI and EGIDI), A., ii, 451.
 - Superphosphates**, analysis of (LEGENDRE), A., ii, 627.
 - Phosphorus sulphochloride**, determination of the molecular weight of, by the boiling point method (ODDO), A., ii, 6.
sesquisulphide and its behaviour with Mitscherlich's test (CLAYTON), P., 1902, 129.
 - Phosphorus thiocyanate**, action of, on alcohols (DIXON), T., 168; P., 1901, 260.
 - Phosphorus, detection and estimation of:**—
 - Mitscherlich's test for, in presence of alcohol (HABERMANN and OESTERREICH), A., ii, 224.
detection of, in cases of poisoning (ALESSANDRI), A., ii, 288.
rapid estimation of (RAMORINO), A., ii, 473.
estimation of, in iron and steel (ANTONY), A., ii, 47.
estimation of, in presence of organic matter (MEILLÈRE), A., ii, 288.
estimation of soluble, in soil (SCHLESING), A., ii, 221.

Phosphotungstic acid, action of amino-acids on (SCHULZE and WINTERSTEIN), A., i, 137.

PHOTOCHEMISTRY :—

Light, chemical action of (CIAMICIAN and SILBER), A., i, 433 ; (ARCHETTI), A., ii, 485.

chemical action of, chemical dynamics and statics under the (WILDERMANN), A., ii, 545.

action of, on the action of bromine on metallic silver (v. CORDIER), A., ii, 18.

influence of, on the combination of carbon monoxide with chlorine (DYSON and HARDEN), P., 1902, 191.

action of, on chlorine gas (MELLOR), T., 1280 ; P., 1902, 169.

action of, on the combination of chlorine and hydrogen (MELLOR and ANDERSON), T., 414 ; P., 1902, 32 ; (BEVAN), A., ii, 237.

action of, on enzymes and toxins (EMMERLING), A., i, 195.

Photochemical reactions, kinetics of (GOLDBERG), A., ii, 485.

Photographic images, negative, formation of, by the action of vapours (VIGNON), A., ii, 438.

prints, theory of the reactions occurring in solutions employed for the combined toning and fixing of, on silver chloride-citrate paper (A. and L. LUMIÈRE and SEYEWETZ), A., ii, 319 ; (JOUVE), A., ii, 656.

Toning solutions containing lead thionates (A. and L. LUMIÈRE and SEYEWETZ), A., ii, 606.

Photographs of spark spectra (ADENEY), A., ii, 57.

Radiations from radioactive substances, properties of (BECQUEREL), A., ii, 238.

from a mixture of barium and radium chlorides, reflection of (TOMMASINA), A., ii, 190.

from radium, chemical effects of (BERTHELOT), A., ii, 18, 136 ; (BECQUEREL), A., ii, 57.

from radium and thorium, condensation points of (RUTHERFORD and SODDY), P., 1902, 219.

Radioactive bismuth (MARCKWALD), A., ii, 508.

lead (HOFMANN and WÖLFL), A., ii, 261, 397.

thorium (HOFMANN and ZERBAN), A., ii, 211.

PHOTOCHEMISTRY :—

Radioactive substances (GIESEL), A., ii, 78, 208 ; (HOFMANN and STRAUSS), A., ii, 78 ; (P. and S. CURIE), A., ii, 190 ; (HENNING), A., ii, 297.

properties of radiations from (BECQUEREL), A., ii, 238.

comparison of the radiations from (RUTHERFORD and BROOKS), A., ii, 590.

deviable rays of (RUTHERFORD and GRIER), A., ii, 637.

influence of, on the luminescence of gases (DE HEMPTINNE), A., ii, 58.

Radioactivity, cause and nature of (RUTHERFORD and SODDY), T., 837 ; P., 1902, 120.

as a general property of matter (MARTIN), A., ii, 438.

and the electron theory (CROOKES), A., ii, 374.

absorption of, by liquids (TOMMASINA), A., ii, 438.

imparted to salts by cathode rays (MCLENNAN), A., i, 297.

induced, excited by radium salts (CURIE and DEBIERNE), A., ii, 58,

of thorium compounds (RUTHERFORD and SODDY), T., 321, 837 ; P., 1902, 2, 120.

of uranium (SODDY), T., 860 ; P., 1902, 121 ; (BECQUEREL), A., ii, 117.

Cathode rays, chemical action of (SCHMIDT), A., ii, 237.

radioactivity induced by (MCLENNAN), A., i, 297.

Röntgen rays, law of transparency of matter for (BENOIST), A., ii, 191, absorption of, by aqueous solutions (MCCLUNG and MCINTOSH), A., i, 297.

Tesla rays, behaviour of aldehydes and ketones towards (KAUFFMANN), A., ii, 191.

Ultra-violet rays, dispersion of (MARTENS), A., ii, 117.

Aneropolarimetry (TER BRAAKE), A., i, 742.

Polarisation of fruits, jellies, jams, and honeys (TOLMAN), A., ii, 537.

Rotation of optically active compounds, influence of solvents on the (PATTERSON), T., 1097, 1134 ; P., 1902, 133.

of the esters of *t*-borneol (MINGUIN and DE BOLLEMONT), A., i, 383.

of lactic acid and its potassium salt, influence of acidic oxides on the (HENDERSON and PRENTICE), T., 658 ; P., 1902, 88.

PHOTOCHEMISTRY :—

- Rotation** of tartrates in glycerol and in water (LONG), A., i, 75.
 of ethyl tartrate, influence of benzene, toluene, *o*-, *m*-, and *p*-xylene and of mesitylene on the (PATTERSON), T., 1097; P., 1902, 133.
 influence of naphthalene on (PATTERSON), T., 1134; P., 1902, 133.
 of sodium hydrogen tartrate, action of ammonium paramolybdate on the (KLASON and KÖHLER), A., i, 75; (ITZIG), A., i, 259.
 of sucrose (PELLAT), A., i, 264.
 of sucrose when dissolved in amines (WILCOX), A., i, 747.
 of sucrose in pyridine and in water (WILCOX), A., i, 83.
 of lichen derivatives (SALKOWSKI), A., i, 228.
 of blood serum (DONGIER and LE-SAGE), A., ii, 411.
- Rotation dispersion** of spontaneously active substances (WINTHROP), A., ii, 589.
- Magnetic rotation**, dispersion of, in negatively rotating salt solutions (SIERTSEMA), A., ii, 237.
 of ring compounds (PERKIN), T., 292; P., 1902, 28.
 of some polyhydric alcohols, hexoses, and saccharobioses (PERKIN), T., 177; P., 1901, 256.
 of β -bromocamphor (PERKIN), T., 1465.
 of 3:5-dichloro-1:1-dimethyl- $\Delta^{2:4}$ -dihydrobenzene (PERKIN), T., 828.
 of 3:5-dichloro-*o*-xylene (PERKIN), T., 1535.
 of 1:1-dimethyl- $\Delta^{2:4}$ -dihydrobenzene (PERKIN), T., 836.
- Birotation** of glucosamine (SUNDVIK), A., i, 137.
- Mutarotation** of camphorquinone-hydrazone, and the influence of catalytic agents on it (LAPWORTH and HANN), T., 1508; P., 1902, 143.
- Refraction** in relation to dielectric constants of nitrogen compounds (VAN AUBEL), A., ii, 373.
 of mixed liquids (VAN AUBEL), A., ii, 373.
 of normal salt solutions (BENDER), A., ii, 437.
 of solutions in carbon disulphide (FORCH), A., ii, 589.
 of salts of borotungstic acid (KAHLBAUM, ROTH, and SIEDLER), A., ii, 260.

PHOTOCHEMISTRY :—

- Refraction** of borneol and camphor and its derivatives (PERKIN), T., 317; P., 1902, 29.
 of β -bromocamphor (PERKIN), T., 1465.
 of 3:5-dichloro-1:1-dimethyl- $\Delta^{2:4}$ -dihydrobenzene (PERKIN), T., 828.
 of 3:5-dichloro-*o*-xylene (PERKIN), T., 1535.
 of dimethyl- $\Delta^{2:4}$ -dihydrobenzene (PERKIN), T., 836.
 of blood serum (DONGIER and LE-SAGE), A., ii, 411.
- Refractometer**, use of, in milk analysis (UTZ), A., ii, 539; (HALS and GREGG), A., ii, 708.
- Dispersion** of salts of borotungstic acid (KAHLBAUM, ROTH, and SIEDLER), A., ii, 260.
- Spectra**, gaseous, dark lines in (TROWBRIDGE), A., ii, 589.
 ultra-violet absorption (DROSSBACH), A., ii, 190, 374.
 of the dissociation of water vapour (TROWBRIDGE), A., ii, 589.
 quantitative, of beryllium (HARTLEY), A., ii, 237.
 of caesium, potassium, and rubidium (RAMAGE), A., ii, 637.
 of carbon, effect of hydrogen on the (HERBERT), A., ii, 637.
 of cyanogen, peculiarities in the (KING), A., ii, 373.
 in coal gas flame (HARTLEY), A., i, 208.
 of the rare earths (LANGLET), A., ii, 189.
 absorption, of metallic nitrates (HARTLEY), T., 556; P., 1902, 67, 239.
 banded flame, of metals (HARTLEY), A., ii, 189.
 spark, of metals, photographs of (ADENEY), A., ii, 57.
 band, of nitrogen (DESLANDRES), A., ii, 373.
 of biliverdin, bilirubin, protein-chromone, and urobilin (BIER and MARCHLEWSKI), A., i, 636.
 of methyl derivatives of indigotin (KUHARA and CHIKASHIGE), A., i, 228.
 of isatin and indophenazine derivatives (v. KORCZYNSKI and MARCHLEWSKI), A., i, 648.
 of mesoporphyrin and phylloporphyrin (MARCHLEWSKI), A., i, 636.
 absorption, of phenol, phloroglucinol and some of its derivatives, and pyrogallol (HARTLEY, DORRIE, and LAUDER), T., 929; P., 1902, 171.

PHOTOCHEMISTRY :—

- Spectra** of colour bases from *p*-tolyl- α -naphthylamine and nitroso-dimethyl- and -diethyl-*m*-amino-phenol (GNEHM and RÜBEL), A., ii, 146.
 of the aurora borealis, nature and constitution of (STASSANO), A., ii, 437.
 lamps for (BECKMANN), A., ii, 373.
- Spectroscopy** and the constitution of matter (EGINITIS), A., ii, 437.
 use of helium in (TSCHERMAK), A., ii, 189.
- Photography.** See Photochemistry.
- Photosantonic acid**, constitution of (FRANCESCONI and VENDETTI), A., i, 545.
- iso***Photosantonic acid**, constitution of, and its oxime (FRANCESCONI and VENDETTI), A., i, 546.
- iso***Photosantonolactoneoxime** and its acetyl derivative, and phenylhydrazone (FRANCESCONI and VENDETTI), A., i, 546.
- Phrynolysin** (PRÖSCHER), A., ii, 278.
- iso***Phthalaldehyde** tetra-acetates (FARBENFABRIKEN VORM. F. BAYER & CO.), A., i, 102.
- Phthalamic acid**, 3-nitro- (BOGERT and BOROSCHEK), A., i, 98.
- Phthalhydroxylamic acid** (BASLER CHEMISCHE FABRIK), A., i, 720.
- Phthalic acid**, dichloromethyl ester (DESCUDÉ), A., i, 451.
- Phthalic acid**, α -amino- (ONNERTZ), A., i, 101.
 α - and β -amino-, and α - and β -nitro-, and their imides (SEIDEL), A., i, 159; (KAHN), A., i, 228.
 3:5-dichloro-, and its diethyl ester, silver salt, anhydride, aul and imide (CROSSLEY and LE SUEUR), T., 1536; P., 1902, 191.
 3:6-dichloro- and 3- and 4-nitro-, conductivity of the esters of (WEGSCHEIDER), A., i, 617.
- tetrachloro-** and 3-nitro-, amyl esters (MARCKWALD), A., i, 459.
- 3- and 4-nitro-, and their derivatives (BOGERT and BOROSCHEK), A., i, 98; (ONNERTZ), A., i, 99.
- p*.**Phthalic acid.** See Terephthalic acid.
- Phthalic anhydride**, behaviour of, towards water (VAN DE STADT), A., ii, 598.
- Phthalic chloride**, action of, on aromatic amines (KUHARA and FUKUI), A., i, 34.
- Phthalimide**, 3-chloro- (BOGERT and BOROSCHEK), A., i, 98.
 3- and 4-nitro- (SEIDEL and BITTNER), A., i, 719.
- e*.**Phthaliminoamyl mercaptan** and sulphides (MANASSE), A., i, 352.
- Phthaliminoamylmalonic acid**, ethyl ester (MANASSE), A., i, 351.
- Phthalochloroimide** (TSCHERNIAC and BRAUN), A., i, 140.
- Phthalylhydroxylamine** (BASLER CHEMISCHE FABRIK), A., i, 720.
- Phthalyl-2:4-tolylenediamines**, 2- and 4- (GEIGY & CO.), A., i, 497.
- Phylloporphyrin** (MARCHLEWSKI), A., i, 387.
 comparison of, with mesoporphyrin (MARCHLEWSKI), A., i, 636.
- Physiological action** and chemical constitution (LAFFONT), A., ii, 466.
 of acetone and chloral hydrate (ARCHANGELSKY), A., ii, 36.
 of adenine and guanine (SCHITTENHELM), A., ii, 617.
 of adrenalin (TAKAMINE), A., ii, 217.
 of organic ammonium iodides (JACOBJ), A., ii, 620.
 of extracts of animal tissues (VINCENT and SHEEN), A., ii, 519.
 of borax and boric acid (ROST; RUBNER; NEUMANN; HEFFTER; POLENSKE), A., ii, 620.
 of bufonin and bufotalin (FAUST), A., i, 447.
 of calcium hypophosphite (MASSOL and GAMEL), A., ii, 37; (PANZER), A., ii, 225.
 of curare and physostigmine (ROTHBERGER), A., ii, 38.
 of epiosine (VAHLEN), A., i, 818.
 of formaldehyde (KOCH), A., ii, 165.
 of α -glucoheptose (WOHLGEMUTH), A., ii, 616.
 of guanidine (POMMERRENG), A., ii, 274.
 of "hypnotoxin" (PORTIER and RICHET), A., ii, 343.
 of ibogaine (DYBOWSKI and LANDRIN), A., i, 114.
 of ibogine (LAMBERT and HECKEL), A., ii, 219.
 of ipohine (HARTWICH and GEIGER), A., i, 115.
 of extracts of kidneys (GÉRARD), A., ii, 575.
 correlation of the constitution and, of morphine (VAHLEN), A., i, 727.
 of decoction of mussels (THIBERT), A., ii, 96.
 of pentosans (KÖNIG and REINHARDT), A., ii, 273.
 of some pyrrole, pyrrolidine, and pyrrolidine derivatives (TUNNICLIFFE and ROSENHEIM), A., ii, 681.
 of rhamnose (CREMER), A., ii, 154.
 of salt (FREDERICQ), A., ii, 154.

- Physiological action** of selenium and its compounds (WOODRUFF and GIES), A., ii, 278.
 of hydrogen selenide, sulphide, and telluride (DE FORGRAND and FONZES-DIACON), A., ii, 557.
 of xylan (SLOWTZOFF), A., ii, 154.
 of yohimbine hydrochloride (ARNOLD and BEHRENS), A., i, 233.
 of zein (SZUMOWSKI), A., ii, 674.
 of *Zygadenus venenosus* (HUNT), A., ii, 278.
- Physostigmine**, physiological action of (ROTHBERGER), A., ii, 38.
- Phytosterol**, esters of (BÖMER and WINTER), A., i, 30.
- Piceapimaric**, **Picipimarinic**, **Picipimarolic acids** and **Picroresen** (TSCHIRCH and KOCH), A., i, 232.
- Piceol**, constitution of (CHARON and ZAMANOS), A., i, 104.
- 2-Picoline** (*2-methylpyridine*) from Scottish shale oil (GARRETT and SMYTHE), T., 451; P., 1900, 190; 1902, 47.
 action of anisaldehyde on (BIALON), A., i, 828.
 condensation of, with formaldehyde (KOENIGS and HAPPE), A., i, 394.
 action of *p*-tolualdehyde on (DIERIG), A., i, 826.
 derivatives (FEIST), A., i, 642.
- γ-Picoline-3:5-di- and -tetra-carboxylic acids** (WOLFF, GÄBLER, and HEYL), A., i, 677.
- Picolinic acid** and its amide and their aurichlorides (MEYER), A., i, 727.
- Picramide**, compound of, with 4:4'-tetramethyl-diaminodiphenylmethane (LEMOULT), A., i, 751.
- Picric acid**, solubility of, in benzene and in water (FINDLAY), T., 1219; P., 1902, 172.
 partition coefficient of, between water and amyl alcohol, water and ether, and water and toluene (SISLEY), A., i, 815.
 behaviour of, towards boiling alkali hydroxides (WEDEKIND and HÄUSSERMANN), A., i, 367.
 compound of, with 4:4'-tetramethyl- and 4:4'-tetraethyl-diaminodiphenylmethane (LEMOULT), A., i, 751.
- Picriminothiocarbonic esters** (CROCKER), T., 436; P., 1902, 57.
- Picrocrocin**, dextrose from (KASTNER), A., i, 685.
- Pierolichenic acid** (ZOPF), A., i, 465.
- Picyril chloride**, action of sodium nitrite on (KYM), A., i, 16.
- Pigeonite** from Minnesota (WINCHELL), A., ii, 462.
- Pigment**, blue, from *Crenilabrus pavo* (v. ZEYNEK), A., i, 168.
- Pigments**, relationship of, and iron in the liver and skin (FLORESCO), A., ii, 157.
- Pigs**. See Agricultural Chemistry.
- Pilocarpic acid** and its additive compounds (PINNER and SCHWARZ), A., i, 233.
- isoPilocarpic acid* and its additive compounds (PINNER and SCHWARZ), A., i, 232.
- isoPilocarpic acid*, dibromo- (PINNER and SCHWARZ), A., i, 639.
- Pilocarpine** (PINNER and SCHWARZ), A., i, 232.
 constitution of (PINNER and SCHWARZ), A., i, 638.
 action of, on echinoderm embryos (MATHEWS), A., ii, 96.
- Pilocarpoeic acid** (PINNER and SCHWARZ), A., i, 232.
- Pilomalic acid** (PINNER and SCHWARZ), A., i, 232.
- Piluvic acid** (PINNER and SCHWARZ), A., i, 232.
- Pimelic acid** (*isopropylsuccinic acid*; *pentanedicarboxylic acid*) (CROSSLEY), T., 676; P., 1901, 172; 1902, 86.
- Pinacolin** (*methyl tert. butyl ketone*), isomerism of (DELACHE), A., i, 79.
- Pinacone** (m.p. 128—130°) from hexenone (WALLACH and SCHEUNERT), A., i, 724.
- Pine forests**, maritime, air of (DUPHIL), A., ii, 204.
- Pinene** from the oil of *Asarum canadense* (POWER and LEES), T., 61; P., 1901, 210.
 from oil of rue (POWER and LEES), T., 1590; P., 1902, 193.
 and its derivatives, magnetic rotation of (PERKIN), A., 292; P., 1902, 29.
 action of arsenic acid on (GENVRESSE), A., i, 300.
 derivatives (TILDEN and BURROWS), P., 1902, 161.
- l*-**Pinene**, oxidation of, with mercuric acetate (BALBIANO and PAOLINI), A., i, 808.
- Pinenolglycuronic acid** (FROMM and HILDEBRANDT), A., ii, 159.
- Pink salt**. See Ammonium tin chloride.
- Pinnoite**, artificial preparation of (VAN'T HOFF and BRUNI), A., ii, 666.
- Pinylthiocarbimide** (v. BRAUN and RUMPF), A., i, 275.
- Pipecoline**, 1-amino- and nitroso- (v. OSTOJA BALICKI), A., i, 818.

- Piper Femechoni.* See Agricultural Chemistry.
- Piperazine**, compound of, with mercuric salts (CHEMISCHE FABRIK AUF AKTIEN), A., i, 349.
- Piperic chloride** and methyl ester (MEYER), A., i, 31.
- Piperidine**, critical constants of (GUYE and MALLET), A., ii, 303.
- compounds of, with silver haloids (WUTH), A., i, 594.
- Piperidine-1-acetic acid**, methyl ester, and its compound with benzyl bromide (WEDEKIND), A., i, 233.
- Piperidincarbamic acid**, *o*-, *p*-, and *penta*-chlorophenyl, *o*-, *m*-, and *p*-tolyl, eugenyl and thymyl esters (BOUCHETAL DE LA ROCHE), A., i, 562.
- ε-**Piperidinoamylamine** (MANASSI), A., i, 352.
- 2-Piperidylacetic acid** and its salts (KOENIGS and HAPEE), A., i, 394.
- Piperonal** (*piperonaldehyde*), condensation of, with benzyl methyl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- action of zinc and ethyl bromoisobutyrate on (MUSCHINSKY), A., i, 620.
- Piperonal** (*piperonaldehyde*), *o*-nitro-, action of light on (CIAMICIAN and SILBER), A., i, 434.
- Piperonylene-methyl- and -ethyl-amines** (ANDREE), A., i, 210.
- Piperonylidene-*p*-methylacetophenone** and its phenylhydrazone (SORGE), A., i, 380.
- Piperonylidenenitromethane** (BOUVEAULT and WAHL), A., i, 683.
- Piperonyl-methyl- and -ethyl-amines**, and their salts (ANDREE), A., i, 210.
- Piperylene.** See Pentinene.
- Pipet** for determining the density of liquids (GIRARDET), A., ii, 5.
- Pivalic acid**, bromo-, ethyl ester (BLAISE), A., i, 357.
- Plagioclase**, composition of (TARASSENKO), A., ii, 30; (LOEWINSON-LESSING), A., ii, 147.
- Plant ash**, estimation of potassium in (BOES), A., ii, 474.
- food, determination of available, in soils by the use of weak acid solvents (HALL and PLYMEN), T., 117, P., 1901, 239, 265.
- See also Agricultural Chemistry.
- Plants**, detection of berberine in (GOR-DIN), A., ii, 368.
- detection of glucosides and sucrose in (BOURQUELOT), A., ii, 55.
- estimation of sulphur in (FRAPS), A., ii, 425.
- See also Agricultural Chemistry.
- Plasteins** (KURAÉEFF), A., i, 731.
- Platinum**, brittle, composition of (HARTLEY), P., 1902, 30.
- diffusion of hydrogen through (WINKELMANN), A., ii, 552.
- oxidation phenomenon induced by (TRILLAT), A., ii, 602.
- colloidal, intensifying action of, on oxidising agents (SCHAER), A., ii, 140, 603.
- action of, on persulphuric acid and its salts (PRICE), A., ii, 204.
- Platinum tetraiodide** (BELLUCCI), A., ii, 267.
- sesquioxide* (DUDLEY), A., ii, 564.
- Platinum**, estimation of, in alloys (RICHARDS), A., ii, 701.
- Platinum-black**, occlusion of oxygen by (ENGLER and WÖHLER), A., ii, 127.
- Platinum metals**, pulverisation and recrystallisation of (HOLBORN and HENNING), A., ii, 664.
- action of sodium peroxide on the (LEIDIÉ and QUENNESSEN), A., ii, 360.
- Plumbojarosite** from Cook's Peak, New Mexico (HILLEBRAND and PENFIELD), A., ii, 667.
- Poison**, arrow. See Arrow.
- camass. See *Zygadenus venenosus*.
- of the tentacles of Cœlenterata. See Hypnotoxin.
- of the *Daboia russellii* (LAMB and HANNA), A., ii, 278.
- snake, enterokinase in (DELEZENNE), A., ii, 680.
- of the golden spider. See Arachnolysin.
- of the common toad (PHISALIX and BERTRAND; BERTRAND), A., ii, 576.
- of toads (PRÖSCHER), A., ii, 278.
- viper, action of, on the blood of dogs and rabbits (PHISALIX), A., ii, 672.
- See also Venins.
- Poisoning**, acid, in dog and rabbit (SPIRO), A., ii, 37.
- chronic arsenical, condition of the blood and marrow in (MUIR), A., ii, 37.
- by curare, metabolism during (FRANK and VOIT), A., ii, 161.
- by phosphorus, fat-transference in (KRAUS and SOMMER), A., ii, 342.
- detection of cacodylic acid in cases of (VITALI), A., ii, 161.
- detection of phosphorus in cases of (ALESSANDRI), A., ii, 288.
- Polarisation**. See Electrochemistry and Photochemistry.
- Polei**, essence of. See *Mentha Pulegium*, essence of.
- Polonium** in radioactive bismuth (MARCKWALD), A., ii, 508.

- Polycarbylamines**, aromatic (KAUFLER), A., i, 278.
- Polydymite**, a variety of (STAHL), A., ii, 87.
- Polygonum Persicaria*, constituents of (HORST), A., ii, 220.
- Polygordius larvæ**, effect of various solutions on ciliary and muscular movements in (LILLIE), A., ii, 340.
- Polyhydroxylic compounds**, partially acetylated (KNOLL & Co.), A., i, 71.
- Polyiodides** in nitrobenzene solution (DAWSON and GAWLER), T., 524; P., 1902, 69.
- Polymerisation** of inorganic chloro-anhydrides (ODDO), A., ii, 6; (CIMICIAN), A., ii, 123.
- Polymethylenecarboxylic acids**, synthesis of (ZELINSKY), A., i, 675.
- Polymorphism**, distinction between, and isomerism (WEGLSCHEIDER), A., ii, 126; (BRUNI), A., ii, 448.
- Polymyrcene** (HARRIES), A., i, 811.
- Poplar barks**, variations in the occurrence of salicin and salinigrin in different (JOWETT and POTTER), A., ii, 686.
- Potable water**. See under Water.
- Potash bulbs**, new design for (TERVET), A., ii, 355.
- Potassium**, caesium, and rubidium, spectra of (RAMAGE), A., ii, 637. transport number for, in phenol (RIESENFIELD), A., ii, 594, 595.
- Potassium alloys** with sodium, melting points of (KURNAKOFF and PUSHIN), A., ii, 136.
- Potassium salts**, thermochemical action of ammoniacal cupric oxide on (BOUZAT), A., ii, 550. See also Agricultural Chemistry.
- Potassium percarbonate**, preparation of, and use of, as a substitute for hydrogen peroxide (TREADWELL), A., ii, 206.
- chlorate, decomposition of, in presence of the oxides of manganese (SODEAU), T., 1066; P., 1902, 136.
- perchlorate, poisoning of plants by (JUNGNER), A., ii, 41.
- fluoride, molecular compound of, with hydrogen peroxide (TANATAR), A., ii, 11.
- fluoroborate, action of hydrogen peroxide on (PETRENKO), A., ii, 317.
- fluoropermolybdate, action of hydrogen peroxide on (KASANEZKY), A., ii, 506.
- hydride, preparation and properties of (MOISSAN), A., ii, 136.
- hydroxide, electrical conductivity of, in glycerol (DI CIOMMO), A., ii, 3.
- Potassium hydroxide**, solubility of, in water (FERCHLAND), A., ii, 318. N/100, and N/2 alcoholic solution, preparation of (SCHMATOLLA), A., ii, 352.
- iodide dissolved in phenol, molecular condition of (RIESENFIELD), A., ii, 598.
- solubility of, in nitrobenzene containing iodine (DAWSON and GAWLER), T., 529; P., 1902, 69.
- decomposition of solutions of, by ozone (GARZAROLLI-THURN-LACKH), A., ii, 67.
- decomposition of, in the organism by nitrites (STEPANOFF), A., ii, 620.
- nonaiodide*, KI_2 , probable existence of, in nitrobenzene solution (DAWSON and GAWLER), T., 532; P., 1902, 70.
- permanganate**, action of, on sodium thiosulphate (ÅLANDER), A., ii, 22.
- standardisation of, with oxalic acid (THIELE and DECKERT), A., ii, 176.
- nitrate, spectrum of (HARTLEY), T., 563; P., 1902, 68.
- decrease of the vapour pressure of solutions of (SMITS), A., ii, 123.
- estimation of perchlorate in (DUPRÉ), A., ii, 529.
- iridium nitrite and double salt with potassium chloride (LEIDIÉ), A., ii, 566.
- mercury and zinc nitrates (ROSENHEIM and OPPENHEIM), A., ii, 21.
- stannite, action of ethyl iodide on (PFEIFFER), A., i, 749.
- sulphate, influence of, on the vapour pressure of aqueous ammonia solution (PERMAN), T., 485; P., 1901, 261.
- cobaltous, magnesium, manganous and nickel sulphates, anhydrous (MALLET), T., 1548; P., 1902, 198.
- thallium sulphate (PICCINI and FORTINI), A., ii, 607.
- uranous sulphate (KOHL SCHÜTTER), A., i, 12.
- vanadous sulphate (PICCINI and MARINO), A., ii, 664.
- vanadyl sulphates and sulphites (KOPPEL and BEHRENDT), A., ii, 86.
- tellurates (GUTBIER), A., ii, 558.
- Potassium organic compounds**:— cyanate, preparation of (FRANCESCONI and PARROZZANI), A., i, 140.
- cyanide, commercial, composition of (MOORE), A., i, 429.
- action of, on cuprous and on mercuric thiocyanate (ITZIG), A., i, 208.

- Potassium organic compounds:**—
 uranyl cyanide (ALOY), A., ii, 145.
 thallium chromicyanide, cobaltcyanide, and ferro- and ferri-cyanides (FISCHER and BENZIAN), A., i, 272.
 ferricyanide, magnetic rotation of (SIERTSEMA), A., ii, 237.
 action of oxalic acid on (MATUSCHEK), A., i, 357.
 ferri- and ferro-cyanides, estimation of, iodometrically (RUPP and SCHIEDT), A., ii, 535.
 ferrocyanide, action of, on oxalic acid (MATUSCHEK), A., i, 272.
 titration of, with potassium permanganate (GRÜTZNER), A., ii, 290.
 cadmium ferrocyanides (MILLER), A., i, 429.
 thiocyanate, double salts of, with bismuth thiocyanate (VANINO and HAUSER), A., i, 14.
 cadmium thiocyanate (GROSSMANN), A., i, 663.
- Potassium, estimation and separation of:**—
 estimation of, removal of sulphates before the (ZÖPFCHEN), A., ii, 287.
 estimation of, by pieric acid (REICHARD), A., ii, 175.
 estimation of, as the pyrosulphate (BROWNING), A., ii, 175.
 estimation of, in beets, oats, potatoes and plant-ash (BOES), A., ii, 474.
 estimation and separation of, in saline mixtures (VAN LEENT), A., ii, 48.
 estimation of, in urine (GARRATT), A., ii, 226.
- Potatoes**, estimation of potassium in (BOES), A., ii, 474.
 See also Agricultural Chemistry.
- Potato-starch**. See Granulose.
- Potential**. See Electrochemistry.
- Praseodymium salts**, spectra of, solutions of (LANGLET), A., ii, 189.
- Praseodymium chloride and its hydrates** (MATIGNON), A., ii, 263.
dioxide, action of hypochlorous acid on (MELIKOFF and KLIMENKO), A., ii, 263.
dioxide and peroxide, and the hydrate of the *peroxide* (KLIMENKO), A., ii, 140.
sulphate, crystalline form of (DUFET), A., ii, 326.
sulphates, acid and basic (MATIGNON), A., ii, 325.
- Precipitins**, specific (EISENBERG), A., i, 846.
- Prehnite** in the granulites of Cala Francese (Island of Maddalena, Sardinia) (RIMATORI), A., ii, 668.
- Preservatives**, test for, in milk (LEACH), A., ii, 113.
- Pressure apparatus**, constant, for both reduced and increased pressures (INNES), T., 684; P., 1902, 26.
 regulator for vacuum distillation (BURSTYN), A., ii, 313.
- Prickly pear**, mucilage of the (HARLAY), A., ii, 685.
- Propaldehyde-ββ-disulphonic acid** (DE LÉPINE), A., i, 133.
- cycloPropane**. See Trimethylene.
- Propanedicarboxylic acids**. See :—
 Dimethylmalonic acid.
 Glutaric acid.
- Propanesulphonic chloride**, amide, and anilide (DUGUET), A., i, 428.
- Propanetetracarboxylic acid**. See Di-carboxyglutaric acid.
- Propanetricarboxylic acids**. See :—
 Carboxyglutaric acid.
 Tricarballylic acid.
- isoPropenyltrimethylenedicarboxylic acid**. See Isoprenic acid.
- Propionamide**, α-amino-, hydrobromide (SCHIFF), A., i, 250.
- Propionanilide**, *o*- and *p*-mono-, 2:4-di-, and 2:4:6-tri-bromo- (CHATTAWAY), T., 817; P., 1902, 113.
 chloro-derivatives of (CHATTAWAY), T., 639; P., 1902, 64.
- Propionic acid**, critical constants of, (GUYE and MALLET), A., ii, 303.
 compound of, with nitric acid (PICTET and GENEQUAND), A., i, 584.
- Propionic acid**, chloromethyl and methylene esters (DESCUDÉ), A., i, 738.
- Propionic chloride**, β-chloro- (MICHAEL, GRAVES, and GARNER), A., i, 69.
- Propionylacetocetic acid**, isomeric esters and copper salt (BONGERT), A., i, 73.
- Propionylacetophenone** and its methyl derivative (LESER), A., i, 262.
- p-Propicynl-amino- and -chloramino-azobenzene** (CHATTAWAY), T., 982; P., 1902, 174.
- Propionyl-anisole**, and **phenetole** (KLAGES), A., i, 609.
- Propionylazoinide** (*propionylazido*) (HILLE), A., i, 141.
- Propionyl-bromo- and -chloro-amino-benzenes**, bromo-derivatives (CHATTAWAY), T., 816; P., 1902, 113.
- Propionyl-bromo- and -chloro-amino-chlorobenzenes** (CHATTAWAY), T., 639; P., 1902, 64.
- p-Propionylisobutoxybenzene** and its oxime (KLAGES), A., i, 610.
- Propienylbutyryl** and its dioxime, α-hydrazone-β-oxime, and phenylhydrazone (PONZIO and BORELLI), A., i, 659.

- Propionylhydrazide** and its benzylidene and propylidene derivatives (HILLE), A., i, 141.
- Propionylindoxyls**, 1- and 3- (VORLÄNDER and DRESCHER), A., i, 720.
- Propionylmesitylene** (KLAGES), A., i, 612.
- Propiophenone**, condensation of, with ethyl succinates (STROBBE and NIENENZU), A., i, 460.
- n*-**Propyl alcohol**, properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTEY), T., 747; P., 1902, 105.
- properties of mixtures of, with water (YOUNG and FORTEY), T., 723; P., 1902, 105.
- action of, on its sodium derivative (GUERBET), A., i, 130.
- iso*-**Propyl alcohol**, properties of mixtures of, with benzene, and with benzene and water (YOUNG and FORTEY), T., 744; P., 1902, 105.
- properties of mixtures of, with water (YOUNG and FORTEY), T., 726; P., 1902, 105.
- iso*-**Propylisoamylacetic acid**. See Decoic acid.
- n*-**Propyl isoamyl ketone** and its semicarbazone (BLAISE), A., i, 164.
- iso*-**Propylbenzene**, α -bromo- (WHEELER and JOHNSON), A., i, 761.
- and β -chloro- and β -iodo- (KLAGES), A., i, 667.
- iso*-**Propylisobutylsuccinic acid** (*nonanedicarboxylic acid*) (NEF), A., i, 6.
- 4-*iso*-**Propylidihydroresorcin** and its silver salt, dioxime, ethyl ether and bromo-derivative (CROSSLEY), T., 678; P., 1901, 172; 1902, 86.
- 4-*iso*-**Propylidihydroresorcyclic acid**, ethyl ester (CROSSLEY), T., 676; P., 1901, 172; 1902, 86.
- Propylene**, action of hypochlorous acid on (HENRY), A., i, 417.
- Propylene glycol**, oxidation of, by ferments (KLING), A., i, 8.
- Propylenedicarboxylic acid**. See Glutaconic acid.
- Propylenepentacarboxylic acid**. See Dicarboxyaconic acid.
- Propylenesulphanilides** (AUTENRIETH and RUDOLPH), A., i, 22.
- Propylenetetracarboxylic acid**. See Dicarboxyglutaconic acid.
- Propylenetricarboxylic acids**. See Aconitic acids.
- β -*iso*-**Propylglutaric acid** (*hexanedicarboxylic acid*) (CROSSLEY), T., 676; P., 1901, 172; 1902, 86.
- β -*iso*-**Propylheptoic acid**. See Decoic acid.
- 3-Propyl-4-hexylpyrazolone** (LOCQUIN), A., i, 705.
- iso*-**Propylideneacetone**. See Mesityl oxide.
- Propylidenebisacetoacetic acid**, ethyl ester (WALLACH and BÖTTICHER), A., i, 798.
- β -**Propylidene-p-urazine** (PURGOTTI and VIGANO), A., i, 322.
- iso*-**Propyllævulinic acid** and its oxime, phenylhydrazone, and semicarbazone (WALLACH), A., i, 801.
- Propylmalonic acid**, ethyl ester (FISCHER and DILTHEY), A., i, 270.
- Propyl- ψ -nitrole**, constitution of (PILOTY and STOCK), A., i, 734.
- 4-*iso*-**Propylphenyldihydro-2-picolone-5-carboxylic acid**, ethyl ester (KNOVENAGEL and BRUNSWIG), A., i, 641.
- iso*-**Propylsuccinanilic acid** (CROSSLEY), T., 682.
- iso*-**Propylsuccinic acid** (*pentanedicarboxylic acid*). See Pimelic acid.
- iso*-**Propyltrimethylenedicarboxylic acid**, and its ethyl ester and salts (IPATIEFF), A., i, 588.
- 8-*iso*-**Propylxanthine** (BOEHRINGER & SÖHNE), A., i, 125.
- Prosecretin** (BAYLISS and STARLING), A., ii, 275, 613.
- Protalbic acid** and its salts (PAAL), A., i, 653.
- Protamyrin**, **Protelemic acid**, and **Proteleresin** (TSCHIRCH and CREMER), A., i, 813.
- Proteid**, new, from the brain (ULPIANI and LELLI), A., i, 573.
- passage of, through the intestinal wall (COHNHEIM), A., ii, 93.
- duodenal digestion of (FERRAI), A., ii, 412.
- food, influence of abundant, on metabolism (FRANK and TROMMSDORFF), A., ii, 615.
- minimum, the physiological (CREMER and HENDERSON), A., ii, 155.
- molecule, the aromatic group of the (DUCCESCHI; SPIRO), A., i, 192.
- solutions, discrimination between basic and acidic functions in (SCHIFF), A., i, 250.
- Proteids** (JOLLES), A., i, 192.
- in Bacteria and Fungi, composition of (IWANOFF), A., ii, 279.
- of certain Fungi (WINTERSTEIN and HOFMANN), A., ii, 622.
- from yeast (SCHRÖDER), A., i, 730.
- synthesis of, in the organism (LOEWI), A., ii, 273.
- conditions of the formation of, in plants (ZALEWSKI), A., ii, 348.

Proteids, importance of nitrogen in the synthesis of, in plants (CZAPEK), A., ii, 280.
 transformations of, during germination (ANDRÉ), A., ii, 522.
 influence of the medium on the properties of (STARKE), A., i, 192.
 action of aniline dyes on (HEIDENHAIN), A., i, 651.
 action of nascent chlorine on (EHRENFELD), A., i, 511.
 action of iodine on (SCHMIDT), A., i, 732.
 iodination of, formation and estimation of iodic and hydriodic acids in the (SCHMIDT), A., i, 251; ii, 627.
 decomposition of (STEUDEL), A., i, 731.
 decomposition of, in man, during hard work (JACKSON), A., ii, 156.
 bacillus which hydrolyses (EMMERLING and REISER), A., ii, 279.
 enzyme which dissolves, in malt (EHRLICH), A., i, 252.
 physiological and pathological, method of characterising (PATEIN), A., ii, 520.
 are, prepared in the usual way, combined with fat or fatty acid? (POSNER and GIES), A., i, 331, 652.
 properties of, combining with acids (v. RHORER), A., i, 651.
 compounds of, with metaphosphoric acid (FULD), A., i, 511.
 amount of hexone bases in vegetable (SCHULZE and WINTERSTEIN), A., i, 193.
 preparation of melanins from (SAMUELY), A., i, 731.
 formation of sugar from (LOEW), A., i, 407.
 sulphur in (MÖRNER), A., i, 331.
 of cow's milk (SIMON), A., ii, 95.
 from the muscle of different classes of animals (PRZIBRAM), A., ii, 339.
 of smooth muscle (VINCENT), A., ii, 340.
 coagulated, solution and estimation of, in faeces (OEFELÉ), A., ii, 369.
 fractional precipitation of, by salts (EFFRONT), A., i, 578.
 estimation of sulphur in (OSBORNE), A., i, 250.
 estimation of, in urine (HERLANT), A., ii, 295.
Proteids. See also :—
 Abrin.
 Acid-albumin.
 Albumins.
 Albumoid.
 Albumoses.

Protsids. See :—
 Antipeptones.
 Atmid keratose.
 Atmid keratin.
 Casein.
 Caseinogen.
 Caseoses.
 Chitin.
 Chondro-albumoid.
 Coaguloses.
 Collagen.
 Cystein.
 Cystin.
 Egg-albumin.
 Elastin.
 Fibrin.
 Fibroin.
 Gelatin.
 Globulin.
 Gluco-proteids.
 Gluten.
 Glutinpeptone.
 Glyco-albumose.
 Hæmins.
 Hæmoglobins.
 Histon.
 Ichthylepidin.
 Kephalin.
 Keratin.
 Lactoserum.
 Lecithin.
 Melanins.
 Mucin.
 Mucoids.
 Nucleo-histon.
 Nucleo-proteid.
 Osseo-albumoid.
 Peptone.
 Plasteins.
 Protein.
 Proteoses.
 Pseudomucin.
 Reticulin.
 Sericin.
 Serum-albumin.
 Serum-globulin.
 Thio-albumose.
 Thyreo-globulin.
 Zein.
Protein grains in oleaginous seeds (GRAM), A., ii, 684.
Proteinchromone, spectrum of (BIER and MARCHLEWSKI), A., i, 636.
Proteolysis, acid and physiological (BOKORNÝ), A., i, 408.
Proteolytic action of venins (LAUNOV), A., ii, 673.
Proteoses (DENNSTEDT), A., i, 128.
 separation of, by metallic salts (ČERNÝ), A., i, 194.
Protista, action of inorganic substances on (GOLDBEIGER), A., ii, 675.

- Protocatechuic acids**, dichloro-, affinities of, in relation to their constitution (COPPADORO), A., i, 784.
- Protolichesteric acid** (ZOPF), A., i, 788.
- Protopine** from *Diellytra spectabilis* (GADAMER), A., i, 52.
- Prunus**. See Agricultural Chemistry.
- Prussian blue**, soluble, preparation of (MATUSCHEK), A., i, 357.
- solubility of, under certain conditions (COFFIGNIER), A., i, 664.
- estimation of, in spent gas-purifying material (BERNHEIMER and SCHIFF), A., ii, 361.
- Prussian acid**. See Hydrocyanic acid under Cyanogen.
- Pseudo-acids**, characterisation of (HANTZSCH and VOEGELEN), A., i, 260; (MULLER), A., i, 354.
- characterisation of, by the abnormal relationship of their affinity constants and hydrolysis of their salts (HANTZSCH and BARTH), A., i, 222.
- characterisation of, by the ammonia reaction (HANTZSCH and DOLLFUS), A., i, 223, 675.
- Pseudocatalysis**. See Affinity.
- Pseudogaylussite** (TRECHMANN), A., ii, 89.
- Pseudomesolite** from Minnesota (WINCHELL), A., ii, 462.
- Pseudomucin** (NEUBERG and HEYMANN), A., i, 511.
- Pseudophite**, formation of, in granitic rocks (STADLINGER), A., ii, 90.
- Pseudotsuga taxifolia**, wood tar of (BYERS and HOPKINS), A., i, 738.
- Ptilolite**, variety of, from the Island of Principe Rodolfo (COLOMBIA), A., ii, 668.
- Ptomaines** in urine in infectious diseases (NICOLA), A., ii, 679.
- Pulegene** and its nitrosochloride (WALLACH and COLMANN), A., i, 724.
- nitrolepiperidine and **Pulegone** and its oxime (WALLACH and THEDE), A., i, 724.
- Pulegenic acid** and its anilide and *p*-toluidide, and isomerides (BOUVEAULT and TÉTRY), A., i, 420.
- Pulegolacetic acid**, ethyl ester (TÉTRY), A., i, 585.
- Pulegone**, oxidation of (SPERANSKI), A., i, 384.
- Pulenene** and its nitrosochloride, **Pulenol**, and **Pulenone** and its oximes (WALLACH and RAHN), A., i, 724.
- Purine bases**, production of uric acid from (KRÜGER and SCHMID), A., ii, 415.
- derivatives in human faeces (KRÜGER and SCHITTENHELM), A., ii, 412.
- Purine derivatives**, oxidation of (PLOT), A., i, 139.
- rôle of, in human metabolism (BURIAN and SCHUR), A., ii, 33; (LOEWI), A., ii, 157.
- substances in articles of diet (HALL), A., ii, 465.
- Purple wood**, dye from (KLEEREKOPER), A., i, 48, 111.
- Purpurogallin** and its **carboxylic acid**, tetra-acetyl, tribenzoyl, and dibromo-derivatives (PERKIN and STEVEN), P., 1902, 74.
- trimethyl ether and its acetyl derivative (PERKIN and STEVEN), P., 1902, 253.
- Purpurogallone** and *iso***Purpurogallone** (PERKIN and STEVEN), P., 1902, 254.
- Pyrantin** (*p*-ethoxyphenylsuccinimide), and its alkyl substituted derivatives, stability of (GILBODY and SPRANKLING), T., 793; P., 1900, 224.
- Pyrazole**, $C_{17}H_{28}O_2N_2$, from the action of hydrazine hydrate on 4:6-diacetyl-5-phenyl-3-methylcyclohexane-3-ol-1-one (RABE and ELZE), A., i, 711.
- Pyrazole**, 4-amino-, and its nitrate and benzoyl derivative (WOLLERS and BEHREND), A., i, 844.
- Pyrazole-4-carboxylic acid** from 4-phenylpyrazole (BEHAGHEL and BUCHNER), A., i, 236.
- Pyrazole-5-(or 3)-carboxylic acid** (BUCHNER and HACHUMIAN), A., i, 237.
- Pyrazolones**, $C_{12}H_{18}O_4N_2$, $C_{17}H_{19}O_6N_3$, and $C_{17}H_{20}O_4N_2$, from cyclohexanolones (RABE and ELZE), A., i, 710.
- Pyrazolone-3-acetic acid** and its acetyl and 4-isonitroso-derivatives and their azoimides and hydrazides (KUFFE-RATH), A., i, 58.
- Pyridazine**, $C_{32}H_{24}N_2$, from desyl-*p*-acetophenone and phenylhydrazine (SMITH and MCCOY), A., i, 645.
- Pyridazines** (POPPIENBERG), A., i, 60; (OPPENHEIM), A., i, 186.
- Pyridazyl-3-*p*-benzoic acid** (KATZENEL-LENBOGEN), A., i, 122.
- Pyridine** from Scottish shale oil (GARRETT and SMYTHE), T., 451; P., 1900, 190; 1902, 47.
- and its derivatives, velocity of combination of, with alkyl bromides (MENSCHUTKIN), A., ii, 493.
- latent heat of vaporisation of (KAHLEN-BERG), A., ii, 195.
- action of benzyl chloride and iodide on (TSCHITSCHIBABIN), A., i, 395.
- action of, on tetrachloroquinone (IMBERT), A., i, 55, 117.
- action of diphenylbromomethane on (TSCHITSCHIBABIN), A., i, 395.

- Pyridine**, action of triphenyl-brômo- and -chloro-methane and triphenylcarbinol on (TSCHITSCHIBABIN), A., i, 395.
 compounds of, with antimony haloids (ROSENHEIM and STELLMANN), A., i, 68.
 compounds of, with antimony, manganese and tin haloids (HAYES), A., i, 492.
 compounds of, with bismuth iodide (VANINO and HAUSER), A., i, 308.
 compounds of, with copper thiocyanates (LITTERSCHEID), A., i, 308.
 compounds of, with phenols (v. BAAYER and VILLIGER), A., i, 356.
 compound of, with quinol, and its salts (ORTOLEVA and DI STEFANO), A., i, 54; (ORTOLEVA), A., i, 674.
 compound of, with silver chloride (RENZ), A., i, 563.
 compounds of, with thallic haloids (RENZ), A., i, 393.
 compound of, with quadrivalent titanium thiocyanate (ROSENHEIM and COHN), A., ii, 26.
 derivatives, condensation of, with formaldehyde (KOENIGS), A., i, 179, 180.
 carbamide, phenylcarbamide, and thiocarbamide derivatives of (CAMPs), A., i, 824.
 ferrous chloride (PFEIFFER), A., i, 175.
 picryl chloride (WEDEKIND), A., i, 740.
 silver trisulphimide (HANTZSCH and HOLL), A., ii, 15.
- Pyridine, 2-amino-, aurichloride** (MEYER), i, 728.
 isomeric amino- and their acetyl derivatives, dibromoamino- and bromo-2-amino- (CAMPs), A., i, 824.
 2-cyano-, and its auri- and platinichlorides (MEYER), A., i, 727.
- Pyridine-2-carboxylic acid.** See Picolinic acid.
- Pyridine-3-carboxylic acid.** See Nicotinic acid.
- Pyridine-4-carboxylic acid.** See *iso*-Nicotinic acid.
- Pyridinecarboxylic acids**, preparation of (CAMPs), A., i, 824.
- Pyridinecholine**, action of acetic and benzoic chlorides on (SCHMIDT and LITTERSCHEID), A., i, 308.
- Pyridine-2:3-dicarboxylic acid.** See Quinolinic acid.
- Pyridine series**, desmotropism in the (ERRERA), A., i, 115.
- Pyridine-3:4:5-tri- and penta-carboxylic acids** (WOLFF, GABLE, and HEYL), A., i, 677.
- Pyridoylacetic acids**, 2- and 4-, and their esters and salts (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- 2-Pyridoylaminocrotonic acid**, ethyl ester (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- 2-Pyridylethylacetic acid**, ethyl ester (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- Pyridoyl-1-phenylpyrazolones**, 3- α - and - γ - (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- β -2-Pyridoylpropionic acid**, ethyl ester (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- Pyridylacrylic acid** (FEIST), A., i, 492.
- 2-Pyridyl- α -and- β -bromopropionic acids** and their auribromides (FEIST), A., i, 492.
- 4-Pyridyl butyl ketone** and its picrate (PINNER, DONCHI, DREXLER, and BAY), A., i, 178.
- Pyridylchlorohydroxyquinolysulphonic acid** (IMBERT), A., i, 55.
- Pyridylchlorohydroxy-quinone** and -quinol sulphate (IMBERT), A., i, 55.
- Pyridylrichlorotriketopentamethylene hydrochloride** (IMBERT), A., i, 117.
- Pyridyl cyanides**, isomeric (CAMPs), A., i, 823.
- 3-Pyridylglycine-4-carboxylic acid** and its salts (GABRIEL and COLMAN), A., i, 841.
- 2-Pyridylmethylcarbinol**, salts of (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- Pyridyl methyl, ethyl, and propyl ketones**, 2- and 4-, their salts (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- 2-Pyridyl phenethyl ketone** and its salts (PINNER, DONCHI, DREXLER, and BAY), A., i, 176.
- 2-Pyridylpropanediol** and its salts (KOENIGS and HAPPE), A., i, 394.
- 2-Pyridyl- β -propionic acid** and its aurichloride (FEIST), A., i, 492.
- Pyridyltruxilline acids** and their additive salts (FEIST), A., i, 492.
- Pyridylurethanes** (CAMPs), A., i, 825.
- Pyrimidine** and its 2:4:6-*tri*- and *tetra*-amino- and 5-nitro-2:4:6-*tri*amino-derivatives (GABRIEL), A., i, 59.
 and its bromo-, chloro-, and chloro-iodo-derivatives (OPPENHEIM), A., i, 187.
- Pyrimidines**, methylated (GABRIEL and COLMAN), A., i, 498; (SCHMIDT), A., i, 499.
- Pyrimidine-4:6-dicarboxylic acid** and its salts (ANGERSTEIN), A., i, 123.

- Pyrindanedione carboxylic acid**, methyl ester, and its oxime and salts (BITTNER), A., i, 494.
- Pyrites** (*iron pyrites*) and marcasite, discrimination between, and estimation of, in mixtures (STOKES), A., ii, 87. estimation of copper in (HAAS), A., ii, 229. estimation of sulphur in (AUZENAT), A., ii, 104; (LUNGE), A., ii, 287; (REITLINGER), A., ii, 692.
- Pyritic residues**, analysis of (MINOZZI), A., ii, 358.
- Pyrodypnopalolin**, **Pyrodypnopalacol alcohol** and **Pyrodypnopalacolene** (DELACRE), A., i, 774.
- Pyrogallol**, absorption spectra of (HARTLEY, DOBBIE, and LAUDER), T., 933; P., 1902, 172. etherification of (HIRSCHEL), A., i, 540. auto-oxidation of (HARRIES), A., i, 771. alkaline, heat developed by the action of oxygen on (BERTHELOT), A., ii, 4. **Pyrogallol diethyl ether**, bromo- (HIRSCHEL), A., i, 540. **Pyrogallol triethyl ether** and its **sulphonic acid** and bromo- and bromonitro-derivatives (HIRSCHEL), A., i, 540. **Pyrogallolaldehydeaniline** and its salts (DIMROTH and ZOEPPRITZ), A., i, 294. **Pyrogenic reactions** of organic compounds (LÖB), A., i, 3; (IPATIEFF), A., i, 4, 335. **Pyromeconic acid**, tautomerism of (PERATONER), A., i, 421. **Pyromeconic acid**, nitroso-, isomeric phenylhydrazones, phenylosazones, and osotetrazones of (PERATONER), A., i, 421. **Pyromeconyl ethyl ether** (OLIVERI-TORTORICI), A., i, 302. **Pyromucic acid**, action of phosphorus pentachloride or oxychloride on (CHAVANNE), A., i, 637. azoimide and hydrazide of, and the acyl and benzylidene and propylidene derivatives of the hydrazide (CURTIUS and LEIMBACH), A., i, 302. **Pyromucic acid**, δ-nitro-, and its aniline and *p*-toluidine esters (HILL and WHITE), A., i, 388. *iso***Pyromucic acid**, action of phosphorus pentachloride or oxychloride on (CHAVANNE), A., i, 637. acyl derivatives of (CHAVANNE), A., i, 690.
- Pyromucylurethane**, hydrolysis of (CURTIUS and LEIMBACH; MARQUIS), A., i, 302.
- Pyrone platinichloride** (WERNER), A., i, 686.
- Pyrophosphoric acid**. See under Phosphorus.
- Pyrophyllite** from North Carolina (PRATT), A., ii, 407.
- Pyroracemic acid**. See Pyruvic acid.
- n*-**Pyrotartaric acid**. See Glutaric acid.
- Pyroxene**. See Augite.
- Pyrro-αβ-diazole**. See 1:2:4-Triazole.
- Pyrrole**, mechanism of the formation of, from salts of mucic acid (PICTET and STEINMANN), A., i, 562. condensation products of (PLANCHER), A., i, 640. conversion of, into pyrroline (CIAMICIAN), A., i, 115. and its derivatives, physiological action of (TUNNICLIFFE and ROSENHEIM), A., i, 681.
- Pyrrole**, chloro-derivatives (MAZZARA), A., i, 820.
- Pyrrole derivatives**, formation of, from isonitrosoketones (KNORR and LANGE), A., i, 821. test for nitrogen in, by Lassaigne's method (KEHRER), A., i, 530.
- Pyrroles**, electrolytic reduction of (DENNSTEDT), A., i, 488. condensation of, with aromatic aldehydes (FEIST), A., i, 490; (VORLÄNDER), A., i, 562. preparation of indoles from (DENNSTEDT), A., i, 396. transformation of, into pyrrolines (KNORR and RABE), A., i, 54.
- Pyrrole-2-carboxylic acid**, azoimide and hydrazide of (PICCININI and SALMONI), A., i, 491.
- Pyrrolecarboxylic acids**, esters, condensation of, with aromatic aldehydes (FEIST), A., i, 490; (VORLÄNDER), A., i, 562.
- Pyrrole group**, studies in the (FEIST), A., i, 488, 489, 490; (KEHRER), A., i, 562.
- Pyrrolidine**, physiological action of (TUNNICLIFFE and ROSENHEIM), A., i, 681.
- 2-Pyrrolidinecarboxylic acid**, formation of, by the alkaline hydrolysis of casein (FISCHER), A., i, 640.
- Pyrrolidine ring**, formation of the (WILLSTÄTTER and ETTLINGER), A., i, 233.
- Pyrrolidines**, amino- (PAULY), A., i, 559.
- Pyrroline** and its salts (KNORR and RABE), A., i, 54.

- Pyrroline**, formation of, from pyrrole (CIAMICIAN), A., i, 115.
 hydrochloride, physiological action of (TUNNICLIFFE and ROSENHEIM), A., ii, 681.
- Pyrrolines**, preparation of, from pyrroles (KNORR and RABE), A., i, 54.
- 2-Pyrrylurethane**, and its acetyl and nitroso-derivatives (PICCININI and SALMONI), A., i, 491.
- Pyruvic acid**, electrolytic oxidation of (ROCKWELL), A., i, 740.
 action of carbamide and semicarbazide on (SIMON), A., i, 15.
 action of hydrochloric acid on (DE JONG), A., i, 122.
 action of urethane on (SIMON), A., i, 14.
 conversion of, into methylpyruvic acid (ERLENMEYER), A., i, 595.
 transformation of salts of, and its estimation (DE JONG), A., i, 72.
- Pyruvylphenylhydrazonehydroxamic acid** and its salts and acetyl derivative (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1573.
- Pyruvylpyruvic acid**, ethyl ester, derivatives of (SIMON), A., i, 422.
- Q.**
- Quercetagetin**, and its sulphate, potassium salt and acetyl compound (PERKIN), P., 1902, 75.
- Quercetin** tetramethyl and tetraethyl ethers, constitution of (PERKIN and ALLISON), T., 471.
- Quinaldine**, action of anisaldehyde on (BIALON), A., i, 828.
- Quinaldyl-*p*-methyl- and -*p*-*isopropyl-α*-stilbazole and -*α*-stilbazoline and their additive salts (v. GRABSKI), A., i, 563.**
- Quinaldyl-*α*-stilbazoline** and its hydrochloride and benzoyl derivative (v. GRABSKI), A., i, 564.
- Quinanthere**, thio-, tetrannitrate and disulphate, and hydrochloride of the acetyl compound (EDINGER and EKELAY), A., i, 231.
- Quinidine**, action of sulphurous acid on (KOENIGS and SCHÖNEWALD), A., i, 818.
 new reaction for (HIRSCHSOHN), A., ii, 710.
- Quinine**, action of sulphurous acid on (KOENIGS and SCHÖNEWALD), A., i, 818.
 oxidation of, by chromic acid (GOLDBERG), A., ii, 485.
 new reaction for (HIRSCHSOHN), A., ii, 710.
- Quinine**, acyl derivatives of (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 486.
 ethyl carbonate (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 392, 416.
- Quininecarbamide** (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 486.
- Quinizarin**, reduction of, with hydrogen iodide (PLEUS), A., i, 773.
- Quinizarin-blue**, bromo- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 477.
- Quinol** and azoxyanisole, behaviour of a mixture of, on cooling (ROOZEBOOM), A., ii, 490.
 compound of, with pyridine, and its salts (ORTOLEVA and DI STEFANO), A., i, 54; (ORTOLEVA), A., i, 674.
- Quinol *p*-azoxypyridophenyl and *p*-azodiphenyl ethers** (HAEUSSERMANN and SCHMIDT), A., i, 126.
- Quinola** (AUWERS), A., i, 217.
 history of, and the action of hydrazine bases on (BAMBERGER), A., i, 509.
- Quinoline** and its derivatives, velocity of combination of, with alkyl bromides (MENSCHUTKIN), A., ii, 493.
 compounds of, with antimony haloids (ROSENHEIM and STELLMANN), A., i, 68.
 compounds of, with bismuth iodide (VANINO and HAUSER), A., i, 308.
 compounds of, with copper thiocyanates (LITTERSCHEID), A., i, 829.
 compounds of, with phenols (V. BAEYER and VILLIGER), A., i, 356.
 compound of, with silver chloride (RENZ), A., i, 563.
 compounds of, with silver haloids (WUTH), A., i, 594.
 compounds of, with thallic haloids (RENZ), A., i, 393.
 compound of, with quadrivalent titanium thiocyanate (ROSENHEIM and COHN), A., ii, 26.
 derivatives, condensation of, with formaldehyde (KOENIGS; KOENIGS and BISCHKOPF; KOENIGS and STOCKHAUSEN), A., i, 179.
- Quinoline, 5,7-diiodo-, and its methiodide and methochloride** (WILLGERODT and ARNOLD), A., i, 16.
- isoQuinoline**, compounds of, with copper thiocyanates (LITTERSCHEID), A., i, 829.
 benzyl iodide (WEDEKIND and OECHSLEN), A., i, 118.
- 8-Quinolinealdehyde** and its platinic chloride (HOWITZ), A., i, 397.

- Quinolinic acid**, dihydroxyfluorescein of (LIBERMANN and WÖLBLING), A., i, 547.
- Quinone**, $C_{10}H_6O_4$, and its diacetate, from the oxidation of the base from the dye formed by 2:3:8-trihydroxynaphthalene and diazotised sulphuric acid (FRIEDLÄNDER and SILBERSTERN), A., i, 795.
- $C_{20}H_{10}O_7$ (?), from the oxidation of 1-amino-2:3-dihydroxynaphthalene (FRIEDLÄNDER and SILBERSTERN), A., i, 794.
- Quinone**, action of alcohols on (KNOEVENAGEL and BÜCKEL), A., i, 106.
- action of nitric acid on (SESTINI), A., i, 548.
- dichlorodiimide*, chloro- (COHN), A., i, 442.
- Quinone**, tetrachloro-, from pentachlorophenol (BARRAL), A., i, 367.
- action of pyridine on (IMBERT), A., i, 55, 117.
- o*-**Quinone**, compound of, with pyridine hydriodide, and its acetyl derivative (ORTOLEVA), A., i, 674.
- o*-**Quinoneoxime**. See Phenol, *o*-nitroso.
- Quinophthalone**, isomeride of, and its dibromo-derivative (EIBNER and MERKEL), A., i, 644.
- bromo-derivatives (EIBNER and MERKEL), A., i, 494.
- iso***Quino-β-pyridine** and 6-chloro, and their salts (MARCKWALD and DETTMER), A., i, 235.
- Quinoxalo-α-β-naphthazine** (HINSBERG), A., i, 239.

R.

- Rabbits**, acid poisoning in (SPIRO), A., ii, 37.
- Racemic amino-acids**, resolution of (FISCHER and HAGENBACH), A., i, 85.
- compounds, existence of, in solution (BRUNI and PADOA), A., i, 343.
- Racemisation**, catalytic, of amygdalin (WALKER), P., 1902, 198.
- Radiations, Radioactive substances, and Radioactivity**. See Photochemistry.
- Radicles**, unsaturated, the negative nature of (VORLÄNDER), A., i, 309; ii, 250, 496; (HENRICH), A., ii, 449; (WEDEKIND), A., i, 739.
- Radium**, atomic weight of (CURIE), A., ii, 562.
- chemical effects of radiations from (BERTHELOT), A., ii, 136; (BECQUEREL) A., ii, 57.
- Radium**, condensation point of emanations from (RUTHERFORD and SODDY), P., 1902, 219.
- new gas from (RUTHERFORD and BROOKS), A., ii, 438.
- Radium salts**, induced radioactivity excited by (CURIE and DEBIERNE), A., ii, 58.
- Raffinose** (*melitose*, *melitriose*), estimation of (REINHARDT), A., ii, 362.
- Rain-water**. See Agricultural Chemistry.
- Raspberry juice or syrup**, analysis of (SPAETH), A., ii, 110.
- Rate of reactions**. See Affinity.
- Ratio of distribution**. See Affinity.
- Rays**. See Photochemistry.
- Red rain**. See under Water.
- Reducing action** of some nitro-compounds (VIGNON and GERIN), A., i, 9.
- Reductases** (POZZI-ESCOT), A., i, 655; ii, 635.
- Reduction-potential**. See Electrochemistry.
- Refraction and Refractometer**. See Photochemistry.
- Rennet and antirennet** (KORSCHUN), A., ii, 673.
- presence of, in plants (JAVILLIER), A., ii, 625.
- coagulation of casein by (MÜLLER), A., i, 409.
- Rennin**, formation and secretion of (WINOGRAOFF), A. ii, 36.
- action of, on albumoses and caseoses (KURAÉEFF), A., i, 731.
- action of, on milk (FULD), A., ii, 415.
- Resacetophenone**, action of formaldehyde on (GOLDSCHMIDT), A., i, 716.
- Residual affinity**. See Affinity.
- Resins** of copaiba balsams (TSCHIRCH and KETO), A., i, 166.
- of *Damnara orientalis* (TSCHIRCH and KOCH), A., i, 478.
- from green ebony (PERKIN and BRIGGS), T., 219; P., 1902, 12.
- from *Picea vulgaris* (TSCHIRCH and KOCH), A., i, 551.
- rassamala (TSCHIRCH and VAN ITALLIE), A., i, 111.
- amount of, in tobacco leaves at various periods of their growth (KISSLING), A., ii, 625.
- solubility of some fresh (COFFIGNIER), A., i, 633.
- estimation of, in wax (JEAN), A., ii, 185.
- See also Balsams.
- Resins**. See also :—
- Afeleresen.
- Colophony.
- Dammar resin.

Resins. See :—

Elemi.
Mancopaloresen.
Maneleresen.
Mastic resin.
Picoresen.
Proteleresen.
Sandarac resin.
Storax.
Storesinol.
Styresinol.
Yuceleresen.

Resorcinaldehydeaniline and its hydrochloride (DIMROTH and ZOEPFRTZ), A., i, 293.

Resorcinol (1;3-dihydroxybenzene), condensation of, with phenylacetylacetophenone (BÜLOW and GROTOWSKY), A., i, 484.

monomethyl ether, action of nitrous acid on (HENRICH and RHODIUS), A., i, 447.

diethyl and dimethyl ethers. See 1:3-Diethoxybenzene and 1:3-Dimethoxybenzene.

Resorcinol, 4:2-chloronitro-, and its 1-methyl ether and dibenzoate (MELDOLA and EYRE), T., 999.

Resorcinolazodiphenyl aminesulphoxide (KEHRMANN and VESELY), A., i, 570.

Resorcinolmercury salts (DIMROTH), A., i, 850.

Respiration of an atmosphere rich in oxygen, influence of the (FALLOISE), A., ii, 149.

physical and chemical phenomena of, at high altitudes during a balloon ascent (TISSOT and HALLION ; VALLOT), A., ii, 92.

plant. See Agricultural Chemistry.

Respiratory centre, carbon dioxide as an excitant of the (RULOT and CUVELIER), A., ii, 150.

Respiratory exchange during the deposition of fat (PEMBREY), A., ii, 149.

of man, effect of decompression on the (TISSOT), A., ii, 570.

influence of occlusion of the descending aorta on (RULOT and CUVELIER), A., ii, 149.

Respiratory value of coelomic fluid in certain Invertebrates (CUÉNOT), A., ii, 215.

Reticulin and collagen (TEBB), A., ii, 218 ; (SIEGFRIED), A., ii, 517.

Retinite from Thessaly (ZENGELIS), A., ii, 28.

Rhamnazarin and **Rhamnetin**, constitution of (PERKIN and ALLISON), T., 469.

Rhamnitol pentanitrate (VIGNON and GERIN), A., i, 10.

Rhamnonic acid, degradation of (RUFF and KOHN), A., i, 590.

Rhamnose, value of, in the organism (CREMER), A., ii, 154.

i-Riboketosphenylmethyllosazole (NEUBERG), A., i, 661.

Ricin immunity (JACOBY), A., ii, 680.

Rigor mortis, effect of solutions of various electrolytes and non-conductors on (MOORE), A., ii, 340.

Ring compounds, carbon, formation of (KÖRZ and SPEISS), A., i, 12. magnetic rotation of (PERKIN), T., 292 ; P., 1902, 28.

Ring formation by means of magnesium organic compounds (ZELINSKY and MOSER), A., i, 670.

influence of the methyl group on (GILBODY and SPRANKLING), T., 787 ; P., 1900, 224.

Ringworm fungus. See *Microsporon audouini*.

River water. See under Water.

Robinin and its colouring matter (PERKIN), T., 473 ; P., 1901, 87.

Rock, new name. See Marinopolite.

Röntgen rays. See Photochemistry.

Roots. See Agricultural Chemistry.

Rosamine group, colouring matters of the (LIEBERMANN), A., i, 636.

Rotation. See Photochemistry.

Roumanite from the Black Sea (ISTRATI), A., ii, 567.

Rubber wares, analysis of (HEINTZ), A., ii, 369 ; (FRANK and MARCKWALD), A., ii, 484.

Rubidium, caesium, and potassium, spectra of (RAMAGE), A., ii, 637.

Rubidium ruthenichlorides and oxy-

ruthenichlorides (HOWE), A., ii, 86. phosphates (V. BERG), A., ii, 136.

magnesium and manganous sulphates, anhydrous (MALLET), T., 1549 ; P., 1902, 198.

thallium sulphate (PICCINI and FORTINI), A., ii, 607.

tellurate and hydrogen selenate and tellurate (NORRIS and KINGMAN), A., ii, 15.

Rubidium cadmium thiocyanate (GROSSMANN), A., i, 663.

thiocyanate (GROSSMANN), A., i, 663.

Rubidium, estimation of, as the hydrogen sulphate (BROWNING), A., ii, 175.

Rue, oil of, constituents of (POWER and LEES), T., 1585 ; P., 1902, 192.

Algerian (V. SODEN and HENLE), A., i, 301.

Rufagallic acid (PERKIN), P., 1902, 254.

Ruminants. See Agricultural Chemistry.

Ruscus aculeatus. See Agricultural Chemistry.

Ruthenium chlorides with caesium and rubidium (HOWE), A., ii, 86.

Rye. See Agricultural Chemistry.

S.

Sabinene alcohol (SEMMLER), A., i, 550.

Sabinol- and **Sabinol-glycuronic acids** (FROMM and HILDEBRANDT), A., ii, 160.

isoSaccharic acid, degradation of (RUFF, MEUSSER, and FRANZ), A., i, 591.

"**Saccharin,**" preparation of (BASLER CHEMISCHE FABRIK), A., i, 96.

Saccharose. See Sucrose.

Saccutina and crab, comparison of the organic liquids of the (BRUNTZ and GAUTRELET), A., ii, 676.

Safrole and **isoSafrole**, oxidation of, by mercuric acetate (BALBIANO, PAOLINI, and LUZZI), A., i, 809.

isoSafrole dibromide and bromo-, action of methyl and ethyl alcohols on (POND, ERB, and FORD), A., i, 450.

Sage, oil of, German, salvene from (SEYLER), A., i, 229.

Salicin and **Salinigrin**, variation in the occurrence of, in different poplar and willow barks (JOWETT and POTTER), A., ii, 686.

Salicylaldehydeaniline and its hydrochloride (DIMROTH and ZOEPPRITZ), A., i, 293.

Salicylglycollic acid and its salts (KNOLL & Co.), A., i, 373.

Salicylanilide (LAMBLING), A., i, 756.

Salicylbenzamide (TITHERLEY), T., 1533; P., 1902, 187.

Salicylyhydroxamic acid, ferric salt (HANTZSCHE and DESCH), A., i, 709.

Salicylic acid, occurrence of, in natural wines (WINDISCH), A., ii, 707.

presence of, in strawberries (PORTES and DESMOULIÈRE), A., ii, 40.

new process for the detection and estimation of (PELLET), A., ii, 56.

detection of, in foods (TAFFE), A., ii, 292.

Salicylic acid, salts, solubilities of (TARUGI and CHECCHI), A., i, 204.

bismuth salt (THIBAULT), A., i, 290.

Salicylic acid, glyceryl ester (TÄUBER), A., i, 370.

methyl ester, phenylurethane of (LAMBLING), A., i, 756.

Salicylic acid, 4-amino- and 4- and 5-nitro- (SEIDEL and BITTNER), A., i, 710.

Salicylic acid, 5-mono- and 3:5-di-bromo-, acetyl derivatives (ROBERTSON), T., 1481; P., 1902, 190.

4- and 6-chloro- (COHN), A., i, 61.

See also Hydroxybenzoic acids.

isoSalicylic acid and **dibromo-** (BRUNNER), A., i, 452.

Salicylidenephenylacetylhydrazide (BOETELEN), A., i, 58.

Salicylidenedithio-p-urazine (PURGOTTI and VIGANÒ), A., i, 323.

Salicylidene-p-urazine (PURGOTTI and VIGANÒ), A., i, 322.

Salicylylquinidine (VEREINIGTE CHININFABRIKEN ZIMMER & Co.), A., i, 486.

Saligenin, **dibromo-**, acetyl derivative (STEPHANI), A., i, 148.

Saliva, dog's submaxillary, osmotic pressure of (NÖLF), A., ii, 152.

Saltpetre. See Potassium nitrate.

Salts, electrolysis of fused (LORENZ), A., ii, 591, 640; (BODLÄNDER), A., ii, 640.

acids, and bases, dissociation of, at different temperatures (JONES and DOUGLAS), A., ii, 59.

neutral, dissociation of (ARNDT), A., ii, 62.

acid, and sparingly soluble, chemical equilibria between (MAGNANINI and GRIMALDI), A., ii, 249.

analogous, solubility of (RABE), A., ii, 491.

molecular concentration of solutions of albumin and (FREDERICQ), A., i, 646.

influence of, on heart muscle (HOWELL), A., ii, 94.

Salt vapours, laws of electrolysis of (WILSON), A., ii, 640.

Salvene from German oil of sage (SEYLER), A., i, 229.

Samarium chloride, anhydrous (MATIGNON), A., ii, 505.

sulphate, crystalline form of (DUFET), A., ii, 326.

Sambucus racemosa var. arborescens. See Elderberry, red.

Sandalwood oil, West Indian, constituents of (DEUSSEN), A., i, 552.

Sandarac resin, solubility of (COFFIGNIER), A., i, 633.

Santonin, constitution of (FRANCESCONI and VENDETTI), A., i, 546.

test for, in urine (CROUZEL), A., ii, 544.

yellow. See Chromosantonin.

Santonin hydrazide and semicarbazone, and its dichloro- and pernitroso-derivatives (FRANCESCONI and ANGELUCCI), A., i, 35.

Santonin:

Desmotropo-santonin and **-santonic acid**, action of diazo-salts on (WEDEKIND and SCHMIDT), A., i, 699.

Saponarin, a glucoside from *Saponaria* (BARGER), A., i, 387.

Sausages, estimation of glycogen and starch in (MAYRHOFER), A., ii, 180.

Scatocyanin (SCHUNCK), A., i, 301.

Scato-le-red from urine (RÖSSLER), A., i, 49.

Scheelite from Maderanerthal, Switzerland (SCHMIDT), A., ii, 511.

Schertalite in Australian bat guano (MACIVOR), A., ii, 460.

Schneeburgite (KOECHLIN), A., ii, 331.

i-**Scopolamine** from atroscine (KUNKRAUSE), A., i, 174.

Serophilariaeæ, examination of some (ROSENTHALER), A., ii, 282.

Scutellarin, and **Scutellarin** and its acetyl derivative (MOLISCH and GOLDSCHMIEDT), A., i, 48.

Sea water. See under Water.

Secretin (BAYLISS and STARLING), A., ii, 275, 613; (CAMUS), A., ii, 614.

action of, on the pancreas (BAYLISS and STARLING), A., ii, 613; (HERZEN and RADZIKOWSKI), A., ii, 614.

Secretions, influence of choline on (DESGREZ), A., ii, 574.

Seeds. See Agricultural Chemistry.

Selachian heart, toxicological studies on the (STRAUB), A., ii, 161.

Selenium, atomic weight of (MEYER), A., ii, 392, 605. boiling point of (BERTHELOT), A., ii, 378.

sexavalency of, and asymmetric optically active compounds of (POPE and NEVILLE), T., 1552; P., 1902, 198.

mixed crystals of sulphur and (RINGER), A., ii, 651.

liquid hydrosol of (GUTBIER), A., ii, 610, 652.

compounds of, with phosphorus (MEYER), A., ii, 393.

and its compounds, toxicology of (WOODRUFF and GIES), A., ii, 278.

Selenium compounds, decomposition of, by moulds (ROSENHEIM), P., 1902, 138.

Selenium hydride. See Hydrogen selenide.

Selenides, action of hydrogen on (PÉLALON), A., ii, 253.

Selenic acid, action of, on gold (LENHER), A., ii, 402.

Selenates, isomorphism of tellurates and (NORRIS and KINGMAN), A., ii, 15.

Selenium:

Selenious acid, behaviour of, in the Marsh apparatus (SCHINDELMEISER), A., ii, 693.

Selenium, detection of, in presence of arsenic and tellurium, by the action of Fungi and Bacteria (MAASSEN), A., ii, 629.

estimation of, volumetrically (FRIEDRICH), A., ii, 693.

Selenyl chloride, action of, on erythritol (CHABRIÉ and JACOB), A., i, 657.

Semen, human (SLOWIZOFF), A., ii, 574.

Semen coccognidii, fatty oil of (PETERS), A., ii, 282.

Semicarbazide, action of, on benzil (POSNER), A., i, 82; (BILTZ and ARND), A., i, 245.

action of, on diacetyl (DIELS), A., i, 205.

action of, on pyruvic acid (SIMON), A., i, 15.

Semicarbazides, aromatic, pharmacodynamic properties of certain (A. and L. LUMIÈRE and CHEVROTIER), A., ii, 681.

Semicarbazones, new reaction of (BORSCHÉ), A., i, 186.

Semithiocarbazide as a reagent for the identification of aldehydes and ketones (NEUBERG and NEIMANN), A., i, 572; (FREUND and SCHANDER), A., i, 696.

Serendibite from Gangapitiya, Ceylon (COOMÁRA-SWÁMY), A., ii, 568.

Sericin (BONDI), A., i, 579.

Serine and *iso***Serine** and their phenylcarbamides (FISCHER and LEUCHS), A., i, 268.

Serpentine, lamellar, from the Rhodope Mountains (KOVÁČ), A., ii, 328.

Serum, does lipase exist in the? (DOYON and MOREL), A., ii, 464.

anti-paramaecic (LEDOUX-LEBARD), A., ii, 680.

guinea-pig's, antitryptic power of (ACHALME), A., ii, 96.

of horses' blood, crystalline albumin from the (MAXIMOWITSCH), A., i, 66.

Serum-albumin, carbohydrates of (LANGSTEIN), A., i, 66.

hydrolytic products of (LANGSTEIN), A., i, 331.

of ox blood (HOUGARDY), A., i, 193.

Serum-globulin (VAN DE KERCKHOF), A., i, 193.

Sesamé oil, occurrence and detection of, in commercial arachis oils (SOLTSIEN), A., ii, 114.

detection of, in butter analysis (ANNATÒ; SOLTSIEN), A., ii, 113.

(BREMER), A., ii, 113, 114; (REINSCH; RANWEZ), A., ii, 114.

- Sesamé oil**, detection of, in chocolate (URZ), A., ii, 482.
- Sesquiterpenes**, characterisation and classification of the (SCHREINER and KREMERS), A., i, 108.
- Sewage** and sea water, nature and speed of the chemical changes which occur in mixtures of (LETTIS, BLAKE, CALDWELL, and HAWTHORNE), A., ii, 221.
- Shale oil**, phenols from (GRAY), A., i, 605.
- Scottish, bases in (GARRETT and SMYTHE), T., 449; P., 1900, 190; 1902, 47.
- Shoots**. See Agricultural Chemistry.
- Silica**. See Silicon dioxide.
- Silicomolybdates** (ASCH), A., ii, 83.
- Silicon**, condition of, in cast iron and ferrosilicon (LEBEAU), A., ii, 135. cementation of iron by (LEBEAU), A., ii, 264. amorphous, new properties of (MOISSAN and SMILES), A., ii, 560. action of some reagents on (LEBEAU), A., ii, 255. compounds of, with iron (LEBEAU), A., ii, 135, 264, 457.
- Silicon alloys** with iron, magnetism of (JOUVE), A., ii, 595.
- Silicon hydride**, liquid (MOISSAN and SMILES), A., ii, 318, 560.
- Silicide** of calcium (MOISSAN and DILTHEY), A., ii, 320. of cerium (STERBAI), A., ii, 563. of lithium (MOISSAN), A., ii, 452. of vanadium (MOISSAN and HOLT), A., ii, 610.
- Silicon dioxide (silica)**, supposed formation of, from boron (FITTICA ; COUNCLER), A., ii, 70. common errors in the estimation of (HILLEBRAND), A., ii, 427. estimation of, in silicomolybdates (ASCH), A., ii, 83.
- Silicic acid** in the tissues, especially in the Whartonian jelly (SCHULZ), A., ii, 275. supposed formation of, from boric acid (FITTICA ; COUNCLER), A., ii, 70. colloidal, rate of coagulation of (FLEMMING), A., ii, 646. the hydrogel of, influence of temperature on the texture of (VAN BEMMELLEN), A., ii, 70.
- Silicates**, natural, action of water on (STEIGER), A., ii, 212. analysis of (LEHMANN and STROHÉ), A., ii, 175.
- Meta-silicates**, natural, action of water on (SESTINI), A., ii, 212.
- Silicon**, estimation of, in ferrosilicons (RAMORINO), A., ii, 355 ; (NORRIS), A., ii, 474. estimation of, in steel (AUCHY), A., ii, 174.
- Silico-vanado-tungstic acid**, salts (FRIEDHEIM and HENDERSON), A., ii, 662.
- Silk-glue**. See Sericin.
- Silver**, electrochemical equivalent of (RICHARDS and HEIMROD), A., ii, 592 ; (LEDUC), A., ii, 593. melting point of (BERTHELOT), A., ii, 378. application of the phase rule to the fusing point of (RICHARDS), A., ii, 455. colloidal (PAAL), A., ii, 500. lecture experiment (KÜSPERT), A., ii, 656. catalytic decomposition of hydrogen peroxide by (MCINTOSH), A., ii, 310. pseudo-solution of (GUTBIER), A., ii, 610. metallic, action of bromine on, in the light and in the dark (V. CORDIER), A., ii, 18. ions, velocity of (MATHER), A., ii, 300.
- Silver amalgam** from Sala (SJÖGREN), A., ii, 509.
- Silver salts**, action of, on solutions of ammonium persulphate (MARSHALL and INGLIS), A., ii, 561.
- Silver** bromide and iodide, solubility of, in water (KOHLRAUSCH and DOLE-ZALEK), A., ii, 72. chlorate and sodium chloride, mixed crystals of, and their solutions (FOOTE), A., ii, 453. chloride, compounds of, with pyridine and quinoline (RENZ), A., i, 563. haloids, holohedral-cubic. See Cerargyrite group. subhaloids (EMSZR), A., ii, 73.
- nitrate, spectrum of (HARTLEY), T., 560 ; P., 1902, 68.
- electrolysis of (LEDUC), A., ii, 592.
- interaction of, with disodium phosphate (BERTHELOT), A., ii, 256.
- in pyridine and acetonitrile solutions, relative velocities of the ions of (SCHLUNDT), A., ii, 492.
- "peroxynitrate" and "peroxyfluoride" (TANATAR), A., ii, 73.
- oxide, colloidal (PAAL), A., ii, 500. action of hydrogen peroxide on (BERTHELOT), A., ii, 18, 207.
- selenide, action of hydrogen on (PÉLA-BON), A., ii, 253.

Silver sulphate, solubility of (DRUCKER), A., ii, 74.
tellurates (GUTBIER), A., ii, 559.
gold tellurides in Western Australia (HOLROYD ; SIMPSON), A., ii, 509.
 See also Calaverite.

Silver organic compounds:—
 compounds with acid amides and imides (LEY and SCHAEFER), A., i, 358.
 cyanide, auto-reduction of (MARSH and STRUTHERS), P., 1902, 249.
 haloids, behaviour of, with organic amino-bases (WUTH), A., i, 594.
 pyridine trisulphimide (HANTZSCH and HOLL), A., ii, 15.

Silver, estimation of:—
 estimation of, by gasometric method (RIEGLER), A., ii, 104.
 estimation of, in presence of mercury (RUPP and KRAUSS), A., ii, 475.
 estimation of, in alloys (RICHARDS), A., ii, 701.

Silver-analcite and -chabazite (STEIGER), A., ii, 561.

Silver ingots, American, presence of tellurium in (VINCENT), A., ii, 205.

Sitosterol and its acyl derivatives (RITTER), A., i, 446.

Skin, relationship of iron and pigments in the liver and (FLORESCO), A., ii, 157.

Slags, basic, estimation of total phosphoric acid in (ASCHMAN), A., ii, 627.

See also Agricultural Chemistry.

Soaps, rapid method for the analysis of (TELLE), A., ii, 707.

perfumed, estimation of essential oils in (MANN), A., ii, 433.

Soda ash, analysis of (NORTH and LEE), A., ii, 356.

Sedalite from Viterbo (ZAMBONINI), A., ii, 30.

Sodamide and its acyl derivatives, action of, on organic esters and on acetone (TITHERLEY), T., 1520 ; P., 1902, 186.

use of, as a condensing agent (FREUND and SPEYER), A., i, 584.

Sodium alloys with potassium, melting points of (KURNAKOFF and PUSHIN), A., ii, 136.

Sodium arsenate, action of hydrogen peroxide on (PETRENKO), A., ii, 499. arsenite, preparation of (LUNGE), A., ii, 174.

baborate (*borax*), the molecular condition of, in solution (SHELTON), P., 1902, 169.

physiological action of (ROST ; RUBNER ; NEUMANN ; HEFFTER ; POLENSKE), A., ii, 620.

Sodium carbonate, equilibrium between ethyl alcohol, water, and (KETNER), A., ii, 308.
 chlorate and silver chlorate, mixed crystals of, and their solutions (FOOTE), A., ii, 453.

chloride, temperature variations of the specific molecular conductivity and of the fluidity of solutions of (LYLE and HOSKING), A., ii, 440. decrease of the vapour pressure of solutions of (SMITS), A., ii, 123.
 and sulphate, solubility of mixtures of (SEIDELL and CAMERON), A., ii, 207.

physiological significance of (FREDERICQ), A., ii, 154.

neutralisation of the toxic effect of, by the sulphate (MOORE), A., ii, 467.

influence of phloridzin on the elimination of (LÉPINE and MALLET), A., ii, 617.

excretion of, after extirpation of the pancreas (LÉPINE and MALLET), A., ii, 616.

See also Agricultural Chemistry.

hydride, NaH, preparation and properties of (MOISSAN), A., ii, 206.
 Na₂H, preparation of (MOISSAN), A., ii, 72.

hydroxide, electrical conductivity of, in glycerol (DI CIOMMO), A., ii, 3.
 decomposition-tension of molten (SÄCHER), A., ii, 120.

hypochlorite, action of, on cerium and thorium hydroxides (PISSARJEWSKY), A., ii, 566.

nitrate, spectrum of (HARTLEY), T., 567 ; P., 1902, 68.

decomposition of, by sulphuric acid (VOLNEY), A., ii, 394.

influence of, on metabolism in dogs (ROST), A., ii, 33.

See also Agricultural Chemistry.

nitrite, oxidation of, by permanganate (WADDELL), A., ii, 451.

action of, on 1-chloro-2:4-dinitrobenzene and on picryl chloride (KYM), A., i, 16.

estimation of nitrous acid in (SCHULTZ), A., ii, 473.

iridium nitrite (LEIDIÉ), A., ii, 566.

mercury nitrite (ROSENHEIM and OPPENHEIM), A., ii, 21.

dioxide, fused, action of, on metals (DUDLEY), A., ii, 564.

peroxide, action of, on the platinum metals (LEIDIÉ and QUENNESSEN), A., ii, 360.

hydrogen orthophosphate (GIRAN), A., ii, 318.

Sodium:—

Disodium phosphate, interaction of, with silver nitrate (BERTHELOT), A., ii, 256.

Sodium sesquiphosphate (JOULIE; GI-
RAN), A., ii, 318; (SENDERENS), A., ii, 319.

sulphate, heat of dilution of (COLSON), A., ii, 551.

and chloride, solubility of mixtures of (SEIDELL and CAMERON), A., ii, 207.

heptahydrate of (DE COPPET), A., ii, 255.

vanadyl sulphates and sulphites (KOPPEL and BEHRENDT), A., ii, 86.

sulphate, molecular compound of, with hydrogen peroxide (TANATAR), A., ii, 11.

tellurate (GUTBIER), A., ii, 558.

thiosulphate, physical properties of (FAKTOR), A., ii, 256.

action of, on metallic salts (FAKTOR), A., ii, 25.

reaction of, with potassium perman-
ganate (ALANDER), A., ii, 22.

Sodium organic compounds:—

thiocyanate, fate of, in the organism (POLLAK), A., ii, 616.

cadmium thiocyanate (GROSSMANN), A., i, 663.

Sodium, estimation of:—

estimation of, as the pyrosulphate (BROWNING), A., ii, 175.

estimation of, in urine (GARRATT), A., ii, 226.

Soils, sampling of (LEATHER), T., 883; P., 1902, 125.

apparatus for the mechanical analysis of (GAWALOWSKI), A., ii, 232.

determination of available plant food in, by the use of weak acid solvents (HALL and PLYMEN), T., 117; P., 1901, 239, 265.

method of estimating small quantities of carbonates in (HALL and RUSSELL), T., 81; P., 1901, 241.

chemical methods of estimating the fertility of, as regards phosphoric acid (GEDROIZ), A., ii, 688.

estimation of soluble phosphorus in (SCHLESING), A., ii, 221.

estimation of sulphuric acid in (WILLIAMS), A., ii, 692.

See also Agricultural Chemistry.

Solanum chenopodium, chemistry of (SAGE), A., ii, 281.

Solanum Dulcamara, chemistry of (DAVIS), A., ii, 686.

Solid substances, combination of: lecture experiment (BODROUX), A., ii, 391.

Solid substances, action of, on one another (MATSCHEK), A., ii, 501.

Solubility. See under Solution.

Solution, theory of (TRAUBE), A., ii, 551.

Solubility, factors which condition (LUMSDEN), T., 363; P., 1902, 31.

method of calculating (FINDLAY), A., ii, 386.

of gases in organic solvents and in their solutions (LEVI), A., ii, 247.

of salts (GNOSCHUFF), A., ii, 7.

of analogous salts (RABE), A., ii, 491.

of double salts in water (RIMBACH), A., ii, 306.

of alums as a function of two variables (LOCKE), A., ii, 21.

of ammonia in salt solutions, as measured by its partial pressure (ABEGG and RIESENFIELD), A., ii, 309.

of barium sulphate in aluminium chloride, ferric chloride, and magnesium chloride (FRAPS), A., ii, 394.

of calcium carbonate in aqueous solu-
tions of certain electrolytes in equilib-
rium with atmospheric air (CAMERON and SEIDELL), A., ii, 320.

of calcium hydrogen phosphate in water (RINDELL), A., ii, 208.

of carbon monoxide in binary organic mixtures (SKIRROW), A., ii, 600.

of gypsum (HULETT and ALLEN), A., ii, 656.

in aqueous solutions of certain elec-
trolytes (CAMERON and SEIDELL), A., ii, 207.

inaqueous solutions of sodium chlor-
ide (CAMERON), A., ii, 75.

of hydroxides of heavy metals in sodium hydroxide (RUBENBAUER), A., ii, 396.

of hydroxylamine phosphate and sulphate (ADAMS), A., ii, 655.

of lead and zinc hydroxides (HERZ), A., ii, 77.

of mercurous sulphate and silver sul-
phate (DRACKER), A., ii, 74.

of potassium hydroxide in water (FERCHLAND), A., ii, 318.

of potassium iodide in nitrobenzene containing iodine (DAWSON and GAWLER), T., 529; P., 1902, 69.

of silver bromide and iodide in water (KOHLRAUSCH and DOLEZALEK), A., ii, 72.

of mixtures of sodium chloride and sulphate (SEIDELL and CAMERON), A., ii, 207.

of double sulphates of the formula
 $M_2'M''(SO_4)_2 \cdot 6H_2O$ (LOCKE), A., ii, 497.

- Solubility** of the sulphides of antimony, arsenic, and tin (LANG and CARSON), A., ii, 700.
 of sulphur dioxide in aqueous salt solutions, and its interaction with the salts (FOX), A., ii, 645.
 of uranium sulphates (OECHSNER DE CONINCK), A., ii, 458.
 of zinc hydroxide in ammonia and ammonium bases (HERZ), A., ii, 398.
 of the calcium salts of the acetic acid series (LUMSDEN), T., 350; P., 1902, 31.
 of barium acetate (WALKER and FYFFE), P., 1902, 246.
 of anthracene, mannitol, and picric acid (FINDLAY), T., 1217; P., 1902, 172.
 of salts of benzoic, cinnamic, salicylic and succinic acids (TARUGI and CHECCHI), A., i, 204.
 of silver benzoate (LIEBERMANN), A., i, 368.
 of cyamelide and cyanuric acid (SENIER and WALSH), T., 291; P., 1902, 13.
 of iodine in nitrobenzene containing potassium iodide (DAWSON and GAWLER), T., 528; P., 1902, 69.
 of minerals in magmas (DOELTER), A., ii, 28.
 of certain fresh resins (COFFIGNIER), A., i, 633.
Solubility influences, reciprocal nature of (ROTHMUND and WILSMORE), A., ii, 447.
Solutions of complex compounds, investigation of (BODLÄNDER), A., ii, 63.
 molecular surface energy of (PEKÁR), A., ii, 245.
 concentrated, contribution to our knowledge of (RICHARDSON and ARCHIBALD), A., ii, 384.
 thermodynamics of (SCHÜKAREFF), A., ii, 4; (VAN LAAR), A., ii, 122.
 dilute, expanded theory of (JAHN), A., ii, 597.
 very dilute, the transport number of (STEELE and DENISON), T., 456; P., 1902, 29.
 normal saline, refraction of (BENDER), A., ii, 437.
 saturated, of analogous salts (ROSSI), A., ii, 198.
 behaviour of, on addition of a salt with an ion in common (EVANS), A., ii, 645.
 supersaturated, theory of the molecular constitution of (HARTLEY), A., ii, 200.
 turbid, clearing of (QUINCKE), A., ii, 200.
- Solvent**, influence of the, during the nitration of ring compounds (SCHWALBE), A., i, 755.
 liquid nitrogen peroxide as a (FRANKLAND and FARMER), P., 1902, 47; (BRUNI), A., ii, 312.
 liquid sulphur dioxide as a (WALDEN and CENTNERSZWER), A., ii, 245.
Solvent properties of mixed liquids (DAWSON), T., 1086; P., 1902, 179.
Solvents, dielectric constants of pure (SCHLUNDT), A., ii, 2.
 electrolytic phenomena at the surface of separation of two (NERNST and RIESENFIELD), A., ii, 594; (HITTORF), A., ii, 642.
 influence of, on the rotation of optically active compounds (PATTERSON), T., 1097, 1134; P., 1902, 133.
 inorganic, and their dissociative power (WALDEN), A., ii, 247.
 nitriles as, in molecular weight determinations (KAHLENBERG), A., ii, 310.
 See also Cryoscopy.
Sorbic acid, action of barium hydroxide on (DOEBNER), A., i, 598.
 homologues of (DOEBNER and WEISSENBORN), A., i, 340.
Sorbosephenylmethylosazone (NEUBERG), A., i, 264.
Sorghum vulgare. See Agricultural Chemistry.
Specific gravity. See Density.
 heat. See Thermochemistry.
 rotation. See Photochemistry.
 volume. See Volume, specific.
Spectra and Spectroscopy. See Photochemistry.
Spermatic fluid, crystals from (BOCARUS), A., ii, 274.
Spermatoxin, influence of, on reproduction (DE LESLIE), A., ii, 32.
Sperrylite from the Rambler mine, Wyoming (WELLS and PENFIELD), A., ii, 267.
Spessartite from the Rhodope Mountains (KOVÁŘ), A., ii, 327.
Spices, estimation of essential oils in (MANN), A., ii, 432.
Spider, garden, the poison of the. See Arachnolysis.
Spleen and blood corpuscles (NOËL-PATON), A., ii, 410.
 relation between, and pancreas (RETTGER) A., ii, 275.
 condition of the iron in the (BRODIE), A., ii, 339.
 influence of the, on pancreatic digestion (MENDEL and RETTGER), A., ii, 615.
 proteolytic enzyme of the (LEVTHES), A., ii, 615.

- Spodumene** from Moravia (KOVÁŘ), A., ii, 329.
Stachyose, crystallised (SCHÜLZE), A., i, 594.
Stannous compounds. See under Tin.
Starch, origin of, in wheat grain (DEHÉRAIN and DUPONT), A., ii, 100.
 soluble, acetylation of (PREGEL), A., i, 135.
 gelatinisation of (LEVITES), A., ii, 312.
 action of iodine and of other oxidisers in the hydrolysis of (HALE), A., i, 533.
 velocity of hydrolysis of, by diastase (BROWN and GLENDINNING), T., 388; P., 1902, 43.
 the swelling and solution of, by chloral hydrate (MAUCH), A., i, 426.
 action of ungerminated barley diastase on (BAKER), T., 1177; P., 1902, 134.
 estimation of, in cereals (LINDET), A., ii, 55, 292.
 estimation of, in sausages and meat (MAYRHOFER), A., ii, 180.
 estimation of, in commercial starches and flour (GIANTURCO), A., ii, 705.
Starch syrups, composition and analysis of (HÖNIG), A., ii, 705.
Steam boiler, behaviour of magnesium chloride in a (OST), A., ii, 657, 659.
Stearopalmito-olein (HANSEN), A., i, 340.
Steel. See under Iron.
Stereochemistry of benzene (MARSH), T., 961; P., 1902, 164; (GRAEBE), A., i, 209; (MARCKWALD), A., i, 274; (VAUBEL), A., i, 361.
 of nitrogen (WEDEKIND and OECHSLER), A., i, 118.
Stereoisomeres, behaviour of, in the organism (NEUBERG and WOHLGEMUTH), A., ii, 336.
Stibene. See Antimony hydride.
Stilbazole (*styrylpyridine*) and amino- and nitro-, and the dibromide of the amino-compound (FEIST), A., i, 642; (SCHMIDT), A., i, 826.
Stilbene (*s-diphenylethylen*), action of nitrogen trioxide and peroxide on (SCHMIDT), A., i, 21.
Stilbene, *p*-chloro- (v. WALther and RAETZ), A., i, 467.
 α - and β -*dinitro*- (SCHMIDT), A., i, 500.
 2:4-*di*-, 2:4:3'- and 2:4:4'-*tri*-nitro- (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 364.
Stilbite from the Elba granite (MANASSE), A., ii, 90.
Stilbyl methyl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
Storax, American (TSCHIRCH and VAN ITALLIE), A., i, 110.
 American and Asiatic (VAN ITALLIE), A., i, 45, 46.
 oriental (TSCHIRCH and VAN ITALLIE), A., i, 109.
Storesinol (VAN ITALLIE), A., i, 45.
 and its methyl ether from oriental storax (TSCHIRCH and VAN ITALLIE), A., i, 110.
Strawberries. See Agricultural Chemistry.
Strontianite from Bohemia (KOVÁŘ), A., ii, 329.
Strontium, metallic, preparation of (GUNTZ), A., ii, 138.
Strontium alloys with cadmium and with zinc (GAUTIER), A., ii, 138.
Strontium chloride, compound of, with iodine trichloride (WEINLAND and SCHLEGELMILCH), A., ii, 315.
hydride (GUNTZ; GAUTIER), A., ii, 138.
 preparation and properties of (GAUTIER), A., ii, 208.
 dissociation pressure and heat of formation of (GUNTZ), A., ii, 394.
hydride and nitride, formation and stability of (GAUTIER), A., ii, 453.
tetraiodide (MEYER), A., ii, 319.
Strychnidine (TAFEL and NAUMANN), A., i, 53.
Strychnine, electrolytic reduction of (TAFEL and NAUMANN), A., i, 53.
 and morphine, behaviour of, in putrefying corpses, and detection of, in urine (AUTENRIETH), A., ii, 368.
 estimation of, in nux vomica (DOWZARD), P., 1902, 220.
 separation of, from brucine (LYONS), A., ii, 710.
Stylophorum diphyllum, chemistry of (SCHLÖTTERBECK and WATKINS), A., ii, 100.
Stylopine (SCHLÖTTERBECK and WATKINS), A., ii, 100.
Styrene and its derivatives, migration of the phenyl group in (TIFFENAUS), A., i, 666.
Styrene, *o*- and *p*-nitro- β -bromonitro-, and the action of alcohol on (FLÜRSHEIM), A., 671.
Styrenes (KLAGES), A., i, 611, 666.
Styrenes, $\alpha\beta$ -dichloro-, action of ammonia on (KUNCKELL and VOSSEN), A., i, 599.
Styresinol from American storax (VAN ITALLIE), A., i, 46; (TSCHIRCH and VAN ITALLIE), A., i, 110.
Styrogenin (VAN ITALLIE), A., i, 45.

- Styrylmethanebis-2:5-dimethylpyrrole-3-carboxylic acid**, ethyl ester (FEIST, WIDMER, and SAKOWITSCH), A., i, 490.
- Styrylmethylcarbinol** and its chloride and phenylurethane (KLAGES), A., i, 669.
- Substance**, m. p. 134–135°, from $\beta\beta$ -2:3:5-pentabromo-*p*-ethylidenequinone (ZINCKE, SIEBERT, and REINBACH), A., i, 609.
- $C_2H_2O_2N_2$, from the action of sulphuric acid on nitromalonomide (ULTRIANI and FERRETTI), A., i, 481.
- $C_3H_7N_4I$ and $C_3H_9N_4I_3$, from the action of methyl iodide on tetrazoline (RUHEMANN and STAPLERON), T., 261; P., 1902, 30.
- $C_4H_8O_2N_2$, from the electrolytic reduction of dialuric acid (TAFEL and REINDL), A., i, 15.
- $C_4H_{10}O_4S_3$, from the action of heat on ammonium ethyl sulphite (GOLDBERG and ZIMMERMANN), A., i, 738.
- $C_5H_{11}C_3Cl$, from the action of alcohol on $C_4H_9O_3Cl$ (COOPS), A., i, 77.
- $C_6H_4O_2S_2$, from potassium *m*-benzenedithiosulphonate (TRÖGER and MEINE), A., i, 600.
- $C_6H_4O_5N$, from 5-nitro- β -methyluracil-4-carboxylic acid (BEHREND and THURM), A., i, 833.
- $C_6H_{11}O_3N_3$, and its dibenzoyl derivative, from the action of formaldehyde on creatine or creatinine (JAFFÉ), A., i, 748.
- $C_7H_9O_2Br_4$, from pentabromotoluquinol and alcoholic sodium hydroxide (ZINCKE and WIEDERHOLD), A., i, 285.
- $C_7H_2O_2Cl_4$, and its compounds with acetyl bromide and chloride, from tetrachlorobromotoluquinol and alcoholic sodium hydroxide (ZINCKE and WIEDERHOLD), A., i, 283.
- ($C_7H_5O_2N$), from *p*-nitrosobenzaldehyde and sulphuric acid (ALWAY), A., i, 697.
- $C_7H_8ON_2$, and its diacetyl derivative, from 2:4-dinitrobenzaldehyde and ammonium sulphide (SACHS and KEMPF), A., i, 682.
- $C_7H_9ON_3$, from anthranil and hydrazine hydrate (BUHLMANN and EINHORN), A., i, 95.
- $C_7H_{10}O_2N$, from the action of hydroxylamine on γ -lutidone (PETRENKO-KRITSCHENKO and MOSESCHWILLI), A., i, 190.
- $C_7H_{14}O_4(?)$, from ethyl acetoacetate, chloroacetone, and ammonia (FEIST), A., i, 489.
- Substance**, $C_8H_3OBr_6$ (two), from $\beta\beta$ -2:3:5:6-hexabromo-*p*-ethylidenequinone, and from $\alpha\beta\beta$ -2:3:5:6-heptabromo-*p*-ethylphenol (ZINCKE, SIEBERT, and REINBACH), A., i, 608.
- $C_8H_3OBr_5$, from $\beta\beta$ -2:3:5-pentabromo-*p*-ethylidenequinone (ZINCKE, SIEBERT, and REINBACH), A., i, 609.
- $C_8H_4O_2Br_4$, and its compound with acetyl bromide, from pentabromom-xyloquinol and sodium hydroxide (ZINCKE and TRIPP), A., i, 286.
- $C_8H_{10}O_2$, and its phenylhydrazone derivative, from formaldehyde and acetonylacetone (KNORR and RABE), A., i, 13.
- $C_8H_{10}O_2N_2$, from the oxidation of pilocarpine (PINNER and SCHWARZ), A., i, 639.
- $C_8H_{12}O_3N_2$, from hydroxylamine potassium carbonate, and ethyl $\beta\beta$ -di-acetyl- α -methylpropionate (MARCH), A., i, 258, 707.
- $C_9H_3O_3N$, from paraldehyde and *o*-nitrosobenzoic acid (CIAMICIAN and SILBER), A., i, 378.
- $C_9H_{10}O_2NCl$ from methyl *p*-aminobenzoate, formaldehyde and hydrogen chloride (GOLDSCHMIDT), A., i, 785.
- $C_9H_{15}O$ from terpineol (b. p. 212–213°) (WALLACH and RAHN), A., i, 804.
- $C_9H_{18}O_2$, and its acetate, from the action of sulphuric acid on dihydroxymethyltert.butyllallycarbinol (PETSCHNIKOFF), A., i, 338.
- $C_{10}H_{14}O_3N_2$, from ethyl diazoacetate and propionylacetone (KLAGES), A., i, 497.
- $C_{10}H_{16}O$, from trihydroxyterpinol (WALLACH and RAHN), A., i, 723.
- $C_{10}H_{18}O_4N_2$, and its metallic derivatives, from caoutchouc (WEBER), A., i, 553.
- $C_{11}H_8O_4$, preparation of, and use of, for the identification of carbamide and primary amines (FENTON), P., 1902, 244.
- $C_{11}H_{14}O_2$, from ethyl bromoisobutyrate and *p*-methylbenzaldehyde (ZELTNER), A., i, 371.
- $C_{12}H_{10}O_3N_2$, from the action of hydrochloric acid on the phenylhydrazone of the $\alpha\gamma$ -lactone of α -keto- γ -hydroxybutane- $\alpha\gamma$ -dicarboxylic acid (DE JONG), A., i, 122.
- $C_{12}H_{14}O_5Hg$, and its isomeride, from safrole and mercuric acetate (BALBIANO, PAOLINI, and LUZZI), A., i, 809.

- Substance**, $C_{12}H_{16}O_2N_2$, from the action of cyanogen chloride on sodium camphor (DUVAL), A., i, 106.
- $C_{13}H_{13}ON_3$, from anthranil and phenylhydrazine (BUHLMANN and EINHORN), A., i, 95.
- $C_{13}H_{14}O_3$, from dimethyldihydro-phthalidetetronic acid (WOLFF, GABELL, and HEYL), A., i, 679.
- $C_{13}H_{16}O_5N_2$, and $C_{14}H_{20}O_8N_2$, from the reduction of acid (methyl ester) $C_{14}H_{18}O_8N_2$ (PERKIN, P., 1901, 204).
- $C_{13}H_{17}O_3N$, from the hydrolysis of the base $C_{14}H_{18}O_4N_2$ (FREUND and BAMBERG), A., i, 557.
- $C_{13}H_{19}O_4N$, from ethyl *p*-aminobenzoate and ethyl orthoformate (GOLDSCHMIDT), A., i, 785.
- $C_{14}H_7O_2N$, from 2-aminoanthraquinone (BADISCHE ANILIN- & SODA-FABRIK), A., i, 721.
- $C_{14}H_{11}O_2N_3$, from phenylhydrazine and 1-nitrocoumarone (STOERMER and KAHLERT), A., i, 437.
- $C_{14}H_{15}O_4N$, from cinnamide and ethyl sodiomalonate (VORLÄNDER), A., i, 310.
- $C_{15}H_{12}O_4N_2$, and its analogue from *m*- and *p*-aminobenzoic acids and ethyl orthoformate (GOLDSCHMIDT), A., i, 785.
- $C_{15}H_{16}ON_2$, from salicylaldehyde and *s*-dimethylphenylenediamine (FISCHER and RIGAUD), A., i, 188.
- $C_{15}H_{16}O_4$, from phenylazoacetylacetone (BÜLOW and SCHLOTTERBECK), A., i, 649.
- $C_{15}H_{16}N_2$, from benzaldehyde and *s*-dimethylphenylenediamine (FISCHER and RIGAUD), A., i, 188.
- $C_{15}H_{18}O_3$, and its acetate derivative from the reduction of artemisin (BERTOLO), A., i, 815.
- $C_{15}H_{22}O_3$, from the action of methylene di-iodide on ethyl ethanetetracarboxylate (KÖRTZ and SPEISS), A., i, 13.
- $C_{16}H_8O_2N_2Br_2$, from the action of potassium bromate and bromide on indigotin (VAUBEL), A., i, 543.
- $C_{16}H_{10}O_4$, and its triacetyl derivative, from the reduction of trimethylbrazilone (BOLLINA, V. KOSTANECKI, and TAMBOR), A., i, 482.
- $C_{16}H_{10}O_5$, and its tetra-acetyl derivative, from the reduction of acetyl-trimethyldehydrobrazilone (v. KOSTANECKI and LAMPE), A., i, 482.
- $C_{18}H_{12}O_2$, from the condensation of phenoxyacetophenone with metallic sodium (v. KOSTANECKI and TAMBOR), A., i, 470.
- Substance**, $C_{16}H_{13}ON_3$, and $C_{17}H_{13}O_3N_2$, from aniline δ -nitropyromucate (HILL and WHITE), A., i, 388.
- $C_{16}H_{26}O_3$, from the action of hydriodic acid on styrogenin (VAN ITALLIE), A., i, 46.
- $C_{16}H_{26}O_3$, from storesinol and hydrogen bromide (TSCHIRCH and VAN ITALLIE), A., i, 110.
- $C_{17}H_{14}O_4$, and its acetyl compound from commercial chrysarobin (JOWETT and POTTER), T., 1583; P., 1902, 192.
- $C_{17}H_{14}O_4N_4$, from *p*-nitrobenzaldehyde and ethyl benzeneazomino crotonate (PRAGER), A., i, 64.
- $C_{17}H_{15}O_3N$, from the action of hydroxylamine on benzyl 3:4-methylenedioxycinnamaryl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- $C_{17}H_{16}O_4N_2$, from ethyl *p*-aminobenzoate and ethyl orthoformate (GOLDSCHMIDT), A., i, 785.
- $C_{17}H_{17}ON$, from the action of hydroxylamine on benzyl *p*-methylcinnamaryl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- $C_{17}H_{17}O_4N$, from the action of hydroxylamine on benzyl *p*-methoxy-cinnamaryl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- $C_{17}H_{20}O_2N_2$, from the action of nitrous acid on benzylidene camphoroxime (FORSTER), P., 1902, 90.
- $C_{18}H_{12}O_3N_3$, from the reduction of carbindigo (GABRIEL and COLMAN), A., i, 643.
- $C_{18}H_{17}ON_3$, and $C_{19}H_{17}O_3N_3$, from *p*-toluidine δ -nitropyromucate (HILL and WHITE), A., i, 388.
- $C_{19}H_{16}O_7$, from the action of quinone on excoecarin (PERKIN and BRIGGS), T., 215; P., 1902, 11.
- $C_{19}H_{18}O_9N_2$, from the reduction of $C_{13}H_{10}O_3N_2$ with zinc and acetic acid (HENRICH and RHODIUS), A., i, 448.
- $C_{19}H_{19}O_9N$, from the action of nitric acid on trimethylbrazilone (BOLLINA, V. KOSTANECKI, and TAMBOR), A., i, 482; (v. KOSTANECKI and PAUL), A., i, 686.
- $C_{20}H_{11}ON$, from *o*-acridylbenzoic acid (DAMMANN and GATTERMANN), A., i, 795.
- $C_{20}H_{18}O_3N_4$, from dihydroxymethoxy-methylbenzene and diazoaminobenzene (BOEHM), A., i, 37.
- $C_{20}H_{22}O_5N_4$, from *p*-nitrobenzaldehyde and ethyl benzeneazomethylamino crotonate (PRAGER), A., i, 64, 578.

- Substance**, $C_{20}H_{30}O_9N_2$, from ethyl aminocrotonate and ethyl diketosuccinate (FEIST and STENGER), A., i, 490.
- $C_{22}H_{18}N_4$, from $\beta\gamma\delta$ -triketo- δ -phenylbutane β -phenylhydrazone and *o*-phenylenediamine (SACHS and RÖHMER), A., i, 837.
- $C_{22}H_{19}O_3N_3$, from hydrobenzamide and ethyl cyanoacetate (BECCARI), A., i, 375.
- $C_{22}H_{26}O_2$ (two), from the reduction of benzylidene-methyl ethyl ketone and γ -benzylidene-ethyl methyl ketone (HARRIES and MÜLLER), A., i, 296.
- $C_{22}H_{29}ON_5$, from diazobenzene chloride and ethyl diethylaminocrotonate (PRAGER), A., i, 65.
- $C_{23}H_{17}N_3$, from benzylidene-cyanohydrin and benzeneazo- α -naphthylamine (SACHS and GOLDMANN), A., i, 781.
- $C_{23}H_{15}O_2N_2$, from mandelonitrile (STOLLÉ), A., i, 468.
- $C_{23}H_{22}O_1$, from the oxidation of ψ -methyl opianate (WEGSCHEIDER), A., i, 619.
- $C_{24}H_{20}O_3N_2$, from benzylidene-cyanohydrin and anisaldehyde (STOLLÉ), A., i, 468.
- $C_{24}H_{26}ON_4$, from phenylhydrazine and ficyl-*n*-butanone (BOEHM), A., i, 36.
- $C_{24}H_{26}O_7$, from the action of acetic anhydride on flavaspicid acid (BOEHM), A., i, 38.
- $C_{26}H_{24}O_2N_2$, from tolualdehydecyanohydrin (STOLLÉ), A., i, 468.
- $C_{39}H_{50}O_7$, from the action of zinc and sulphuric acid on digitogenin (KILIANI and MERK), A., i, 46.
- $C_{31}H_{29}O_4N_3$, from hydrobenzamide and ethyl cyanoacetate (BECCARI), A., i, 375.
- $C_{32}H_{22}O_4N_4$ (two), from the reduction of indigotin and indigo-red (VAUBEL), A., i, 543.
- $C_{34}H_{35}O_7N_3$, from anisohydramide and ethyl cyanoacetate (BECCARI), A., i, 376.
- $C_{34}H_{38}O_4$, from the action of potassium ferricyanide on enolic benzoylcamphor (FORSTER), P., 1902, 238.
- $C_{35}H_{54}O_{20}$, from the oxidation of α -manelemic acid (TSCHIRCH and CREMER), A., i, 812.
- $C_{37}H_{40}O_4N_4$, from the action of phenylhydrazine on albaspidin (BOEHM), A., i, 38.
- $C_{38}H_{32}O_2N$, from triphenylcarbinol and hydroxylamine (v. BAAYER and VILLIGER), A., i, 769.
- Substitution**, the process of, in the fatty series (MICHAEL, GRAVES, and GARNER), A., i, 69.
- influence of, on the reactivity of the aromatic *m*-diamines (MORGAN), T., 650; P., 1902, 87.
- influence of, on the formation of diazoamines and aminoazo-compounds (MORGAN), T., 86, 1376; P., 1901, 236; 1902, 185.
- Substitution derivatives**, part played by residual affinity in the formation of (ARMSTRONG and HORTON), P., 1901, 246.
- Succinaldehyde** monoacetyl, nitro- (MARQUIS), A., i, 483.
- Succindialdehyde** (HARRIES), A., i, 345.
- Succinic acid** (*ethanedicarboxylic acid*), salts, solubilities of (TARUGI and CHECCHI), A., i, 204.
- Succinic acid** (*ethanedicarboxylic acid*), ethyl esters, unsaturated dicarboxylic acids from ketones and (STOBBE), A., i, 459; (STOBBE and NIEDENZU), A., i, 460; (STOBBE, STRIGEL, and MEYER), A., i, 461.
- Succinic acid** (*ethanedicarboxylic acid*), bromo-, velocity of decomposition of, in aqueous solution (MÜLLER), A., ii, 647.
- Succinic anhydride**, behaviour of, towards water (VAN DE STADT), A., ii, 598.
- Succinimide**, formation of (BOGERT and ECCLES), A., i, 270.
- Succinochloroimide**, oxidising and bleaching properties of (TSCHERNIAC and BRAUN), A., i, 141.
- Succintetraethylacetal** (HARRIES), A., i, 345.
- Sucrose** (*saccharose, cane sugar*) in coffee berries (GRAF), A., ii, 40.
- in the food reserves of phanerogams (BOURQUELOT), A., ii, 420.
- in the tubercles of *Carum Bulbocastanum* (HARLAY), A., ii, 220.
- magnetic rotation of (PERKIN), T., 189; P., 1901, 256.
- rotatory power of (PELLAT), A., i, 264.
- rotation of, when dissolved in amines (WILCOX), A., i, 747.
- rotation of, in pyridine and in water (WILCOX), A., i, 83.
- density of, in aqueous solutions (DEMICHET), A., i, 264.
- inversion of (v. LIPPmann), A., i, 84.
- influence of concentration, of pressure, of neutral salts, and of sodium chloride on the velocity of inversion of, by sucrase (HENRI), A., i, 712.
- heat of inversion of (PETIT) A., i, 205.

- Sucrose**, products of the fermentation of, by a mucus-forming bacillus (SCHARDINGER), A., ii, 469.
digestion of (WIDDICOMBE), A., ii, 335.
detection of, in plants by means of invertin (BOURQUELOT), A., ii, 55.
estimation of, in beets (HILTNER and THATCHER), A., ii, 111.
estimation of, in preserved fruits containing starch sugar (SCHREFELD), A., ii, 536.
- Sugar**, formation of, from fat (LOEWI), A., ii, 273.
formation of, from glycerol by testicular tissues (BERTRAND), A., ii, 159.
non-formation of, in boiled liver (PAVY and SIAU), A., ii, 217.
formation of, in the liver during perfusion of blood through it (KRAUS), A., ii, 572.
formation of, from proteids (LOEW), A., ii, 407.
- Sugarcane**. See Agricultural Chemistry.
- Sugar, invert**, from *Bassia latifolia* blossom (v. LIPPmann), A., ii, 420.
- Sugars**, reducing, extraction of (TANRET), A., i, 426.
nickel salts as reagents for (DUYK), A., ii, 54.
- Sugar solutions**, capillary constants of (DEMICHET), A., ii, 703.
use of acid mercuric nitrate in the analysis of (PATEIN and DUFAU), A., ii, 291.
- Sugars** of apricots (DESMOULIERE), A., ii, 685.
in some South European fruits (BORNTRAEGER), A., ii, 347.
formation of, by the action of enzymes on hemicelluloses (GRÜSS), A., i, 713.
isomeric acetylhalogen derivatives of (FISCHER and ARMSTRONG), A., i, 263, 746.
carbamide derivatives of (SCHOORL), A., i, 83.
formaldehyde derivatives of (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 745.
preparation of osones and osazones from (FISCHER and ARMSTRONG), A., i, 745.
of the blood and glycolysis (LÉPINE and BOULUD), A., ii, 151.
utilisation of, by the organism (CHARRIN and BROCARD), A., ii, 216, 274.
simple stereoisomeric, absorption of, in the small intestine (NAGANO), A., ii, 516.
- Sugars**, detection and separation of, by β -naphthylhydrazone (HILGER and ROTHENFUSSER), A., ii, 479.
estimation of, in blood (LÉPINE and BOULUD), A., ii, 434.
See also Carbohydrates.
- Sulfurite** (RINNE), A., ii, 611.
- Sulphamide**, preparation of, from ammonium amidosulphite (DIVERS and OGAWA), T., 504; P., 1902, 71.
- Sulphanilic acid**, mono- and di-iodo- (KALLE & CO.), A., i, 716.
- Sulphetone**, $C_7H_{12}S_2$, and **Sulphonetone**, $C_7H_{12}O_4S_2$ (WEIGERT), A., i, 11.
- Sulphides**, aromatic, influence of atoms and atomic groupings on the conversion of, into sulphones (BLANKSMA), A., i, 209.
cyclic aromatic, separation of, from coal tar hydrocarbons (AKTIEN-GESELLSCHAFT FÜR THEER- & ERDÖL-INDUSTRIE), A., i, 714.
- Sulphimide**, so-called (HANTZSCH and HOLL), A., ii, 14.
- Sulphinic acids**, aromatic, preparation of (BASLER CHEMISCHE FABRIK), A., i, 715.
- Sulphoacetic acid**, chloro-, resolution of, into optical isomerides (PORCHER), A., i, 527.
- 4 Sulphobenzeneazo-1:3-diphenyl-pyrazolone** (BÜLOW and HAILER), A., i, 326.
- m-Sulphobenzoic acid** and its esters, conductivity of (WEGSCHEIDER), A., i, 618.
- Sulphocampholenecarboxylic acid** and its salts (HARVEY and LAPWORTH), P., 1902, 142.
- Sulphochromic acid**. See under Chromium.
- isoper** **Sulphocyanic acid**, formation of (DIXON), T., 168; P., 1901, 261.
- Sulphohydroxamic acids**, hydrolysis of (ANGELI, ANGELICO, and SCURTI), A., i, 765.
- Sulphonal**, diamino-, and its salts and diacetyl derivative (MANASSE), A., i, 348.
- Sulphones**, aromatic, influence of atoms and atomic groupings on the formation of, from sulphides (BLANKSMA), A., i, 209.
- Sulphones**. See also :—
 $\text{Acetophenonedi-benzyl-, -ethyl-, and -phenyl-sulphones}$.
 $\beta\text{-Arylsulphoneisobutyl methyl ketone}$.
 $\beta\text{-Arylsulphone-}\beta\text{-methyl-}\beta\text{-phenyl-ethyl phenyl ketone}$.
 $\alpha\text{-Anisylmethylsulphone}$.
 $\alpha\text{-Anisylsulphoneacetic acid}$.

Sulphones. See :—

o-Anisylsulphone-ethyl alcohol.
β-Amylsulphone-*β*-phenylethyl phenyl ketone.
 Benzaldehyde-dialkyl- and diaryl-sulphones.
m-Benzenedibenzylsulphone.
m-Benzenedisulphoneanilide.
m-Benzenedisulphonedibenzylanilide.
m-Benzenedisulphonhydroxylamine.
m-Benzenediodimethyldisulphone.
 Benzophenone-di-benzyl- and -ethyl-sulphones.
β-Benzylsulphone-*β*-methyl-*β*-phenyl-ethyl phenyl ketone.
β-Benzylsulphone-*β*-phenylethyl phenyl ketone.
 Bistetramethylene sulphone.
ψ-Cumylsulphoneacetic acid.
ψ-Cumylsulphone-ethyl alcohol.
 Di-*β*-alkylsulphoneisobutyl ketones.
ββ-Diamylsulphone-butane-*γ*-one, -*γ*-methylpentane-*δ*-one, and -pentane-*γ*- and -*δ*-ones.
ββ-Diamylsulphonepentane-*β*-one.
 Di-*o*-anisylethylenedisulphone.
 Dibenzylacetonedialkylsulphones.
ββ-Dibenzylsulphone-*γ*-methylpentane-*δ*-one, and -pentane-*γ*- and -*δ*-ones.
 Di-*ψ*-cumylethylenedisulphone.
 Di-*α*- and -*β*-naphthylethylenedisulphones.
ζζ-Diphenylsulphone-*β*-methyl-heptane-*γ*-one.
 Diphtaliminoosulphonol.
 Disulphones.
 Di-*m*- and -*p*-xylylethylenedisulphones.
 2-Methylcyclotetramethylene-1:3-disulphone.
 Naphthylsulphoneacetic acid.
 Naphthylsulphone-ethyl alcohols.
α-Phenyl-*γγ*-dibenzylsulphonebutane-*α*-al.
 Phenylethylenedisulphone.
 Phenylsulphoneacetic acid.
 Phenylsulphone-ethyl alcohol.
β-Phenylsulphone-*β*-methyl-*β*-phenylethyl phenyl ketone.
β-Phenylsulphone-*β*-phenylethyl methyl ketone.
α-Phenylsulphone-*β*-phenylethyl phenyl ketone.
ββγγ-Tetrabenzylsulphonebutane.
ββεε-Tetrabenzylsulphonehexane.
γγζζ-Tetrabenzylsulphone-*β*-methylheptane.
ββεε-Tetraphenylsulphonehexane.
ββγ-Trialkylsulphone-*δ*-phenylbutanes.
ααγ-Tribenzylsulphone-*αγ*-diphenylpropane.

Sulphones. See :—

m-Xylylalkylsulphones.
o-Xylylenedibenzyldisulphone.
cyclo-o-Xylylene-1:3-disulphone-2-methylene,-2-methylmethylenes, and -2-phenyl-2-methylmethylenes.
 Xylylsulphoneacetic acids.
 Xylylsulphone-ethyl alcohols.
Sulphosalicylic acid, *o*- and *p*-amino-, and their diazonium compounds (TURNER), A., i, 290.
Sulphurethane and its sodium and potassium derivatives (EPHRAIM), A., i, 269.
Sulphoxides, comparison of, with ketones (SMYTHE), A., i, 221.
Sulphur, occurrence of free, in Beaumont petroleum (RICHARDSON and WALLEACE), A., ii, 327.
 in proteids (MÖRNER), A., i, 331.
 amorphous (SMITH and HOLMES), A., ii, 650.
 sublimed (LEONARD), A., ii, 131.
 existence of a blue or green modification of (ORLOFF), A., ii, 315.
 electrochemical behaviour of (KÜSTER), A., ii, 640.
 basic properties of (EDINGER and EKELEY), A., i, 230.
 viscosity of (MALUS), A., ii, 131.
 molecular weight of (PEKÁR), A., ii, 245.
 determination of the vapour density of, by the Dumas method (BILTZ and PREUNER), A., ii, 132.
 sexavalency of (POPE and NEVILLE), T., 1552; P., 1902, 198.
 orienting influence of (ARMSTRONG and HORTON), P., 1901, 246.
 mixtures of, with phosphorus, below 100° (BOULOUCH), A., ii, 560.
 mixed crystals of selenium and (RINGER), A., ii, 651.
Sulphur compounds, estimation of methoxyl groups in (KAUFLER), A., ii, 291.
Sulphur chloride, determination of the molecular weight of, by the boiling point method (ODDO), A., ii, 6.
 chloride, action of, on benzene (LIPP-MANN and POLLAK), A., i, 750.
Thionyl chloride, determination of the molecular weight of, by the boiling point method (ODDO), A., ii, 6.
 use of, for the formation of acid chlorides (MEYER), A., i, 31.
Sulphuryl chloride, preparation of (WOHL and RUFF), A., ii, 604.
 decomposition of chlorosulphonic acid into sulphuric acid and (RUFF), A., ii, 13.

Sulphur fluorides and oxyfluorides (MOISSAN and LEBOEUF), A., ii, 557
Sulphur hydride. See Hydrogen sulphide.
Sulphide of carbon, gaseous, non-existence of (RUSSELL and SMITH), T., 1538; P., 1902, 197.
Sulphides, action of hydrogen on (PÉLAUDON), A., ii, 253.
Sulphur iodides (MACIVOR), A., ii, 650.
dioxide, liquid, conductivity and dielectric constant of, and the influence of temperature on them (EVERSHEIM), A., ii, 596.
solubility of, in aqueous salt solutions and its interaction with the salts (FOX), A., ii, 645.
liquid, as a solvent (WALDEN and CENTNERSZWER), A., ii, 245.
uncombined, estimation of, in fermented beverages (MATHIEU and BILLON), A., ii, 582.
trioxide, apparatus for the preparation and collection of (WICHELHAUS), A., ii, 132.
and water, physical properties of mixtures of (KNIETSCH), A., ii, 133.
Sulphurous acid, intensifying action of, on oxidising agents (SCHAER), A., ii, 140, 603.
oxidation of, to dithionic acid (CARPENTER), T., 1; P., 1901, 212.
estimation of, in dried fruits (BEYTHIEN and BOHRISCH), A., ii, 472.
Sulphites, reaction of, with hydrogen peroxide (NABL), A., ii, 10.
action of, on nitroprussides (FAGES), A., ii, 472.
Sulphuric acid, decomposition of chlorosulphonic acid into sulphuryl chloride and (RUFF), A., ii, 13.
and its manufacture by the contact process (KNIETSCH), A., ii, 132.
lead chamber process, theory and practice of the (LUNGE), A., ii, 315, 605; (RIEDEL), A., ii, 450, 651; (HAAGN), A., ii, 604.
physical chemistry of (SACKUR), A., ii, 252.
decrease of the vapour pressure of solutions of (SMITS), A., ii, 123.
preparation of standard solutions of (DAUVÉ), A., ii, 690.
detection of arsenic in (SEYBEL and WIKANDER), A., ii, 289; (ARNOLD and MENTZEL), A., ii, 354.
method for the titration of free and combined (MÜLLER), A., ii, 425.

LXXXII. ii.

Sulphur:-

Sulphuric acid, estimation of, gasometrically (RIEGLER), A., ii, 223.
estimation of, photometrically (JACKSON), A., ii, 172.
combined and free, estimation of, volumetrically, in alums (WHITE), A., ii, 476.
estimation of free, in leather (PAESSLER and SLYTER), A., ii, 223.
estimation of, in soils (WILLIAMS), A., ii, 692.
estimation of, volumetrically, in soluble sulphates (NIKAIDO), A., ii, 692.
estimation of, in urine (FOLIN), A., ii, 352.
Sulphates, isometric anhydrous, of the form $M''SO_4$, R'_2SO_4 , (MALLET), T., 1546; P., 1902, 198.
double, of the formula $M'_2M''(SO_4)_2$, $6H_2O$, solubility of (LOCKE), A., ii, 497.
Thiosulphates, reaction of, with hydrogen peroxide (NABL), A., ii, 10.
Persulphuric acid and its salts, action of colloidal platinum on (PRICE), A., ii, 204.
estimation of (PETERS and MOODY ; ALLARD), A., ii, 105.
See also Caro's acid.
Persulphuric acids (ARMSTRONG and LOWRY), A., ii, 558.
Persulphates, electrolytic preparation of, without a diaphragm (MÜLLER and FRIEDBERGER), A., ii, 450.
use of, in analysis (DAKIN), A., ii, 533.
quantitative separations by, in acid solution (DITTRICH and HASSEL), A., ii, 693.
Dithionic acid, formation of (CARPENTER), T., 1; P., 1901, 212; (MEYER), A., ii, 14; (ANTONY), A., ii, 651.
Dithionates, electrolytic formation of (FOERSTER and FRIESSNER), A., ii, 488.
Thionic acids in the fatty series, attempts to prepare (JÖRGENSEN), A., i, 663.
Sulphur, estimation of:-
estimation of, in coal and pyrites (REITLINGER), A., ii, 692.
estimation of, in iron and steel (ANTONY), A., ii, 47.
estimation of, in iron pyrites (AUZENAT), A., ii, 104; (LUNGE), A., ii, 287.
estimation of, colorimetrically, in pig-iron (LINDLAY), A., ii, 425.
estimation of, in pig-iron by Eschka's method (STEHMAN), A., ii, 699.

- Sulphur, estimation of:**—
estimation of, in plants (FRAPS), A., ii, 425.
estimation of, in proteids (OSNORNE), A., i, 250.
- Sun**, influence of, on the vine and other plants (BERTHELOT), A., ii, 421.
- Sunflower cake.** See Agricultural Chemistry.
- Superoxydases** (RAUDNITZ), A., i, 252.
- Superphosphate.** See Agricultural Chemistry.
- Suprarenal capsules**, diastatic ferment of the (CROFTAN), A., ii, 465.
diabetes (BLUM), A., ii, 575.
glands, adrenalin from the (TAKAMINE), A., ii, 217.
nucleo-protein of the (JONES and WHIPPLE), A., i, 731.
- Suprarenin** (v. FÜRTH), A., i, 68.
- Surface energy**, molecular, of solutions (PEKÁR), A., ii, 245.
of liquid oxygen, nitrogen, argon, and carbon monoxide, variation of the, with temperature (BALY and DONNAN), T., 907; P., 1902, 115.
- Surface tension** of liquids, new method for the determination of (WHATMOUGH), A., ii, 125.
- Sweat formation**, the diurnal curve of (FREDERICQ), A., ii, 158.
- Sweetening materials**, artificial, detection of, in beer (SARTORI), A., ii, 187.
- Sweet potato.** See Agricultural Chemistry.
- Sychnodymite**, a variety of (STAHL), A., ii, 87.
- Sylvic acid**, its constitution and autoxidation (FAHRION), A., i, 166.
- Synthesis, asymmetric** (FISCHER and SLIMMER), A., i, 621.
- T.
- Tachyhydrite**, formation of (VAN'T HOFF, KENRICK, and DAWSON), A., ii, 76.
- Tænite** from the Kenton Co. meteorite (FARRINGTON), A., ii, 671.
- i*-**Tagatosephenylmethylosazone** (NEUBERG), A., i, 661.
- Tale** from North Carolina (PRATT), A., ii, 407.
from the United States (MERRILL), A., ii, 462.
- Tallow**, Japan- (BERNHIMER and SCHIFF), A., ii, 294.
- Tallow oils**, analytical constants of (GILL and ROWE), A., ii, 481.
- Tanacetine-Riedel** (SIEDLER and KÖRNER), A., i, 486.
- Tanacetonedicarboxylic acid**, formation of, from sabinene ketone (SEMMLER), A., i, 550.
- Tannin**, interaction of, with tartar emetic (LJUBAVIN), A., i, 161.
- Tannins**, action of, on the activity of yeasts (ROSENSTIEHL), A., ii, 219.
- Tantalum**, preparation and properties of (MOISSAN), A., ii, 266.
- Tar**, wood, of the Douglas fir (*Pseudotsuga taxifolia*) (BYERS and HORKINS), A., i, 738.
composition of various (MJÖEN), A., i, 273.
- "**Taran**," composition of the tanning material (SAROSEK), A., i, 816.
- Taric acid**, constitution of (ARNAUD), A., i, 342, 428.
- Taric acid**, α - and β -amino-, and their decomposition products (ARNAUD), A., i, 428.
- Tartar emetic.** See Tartaric acid, antimony potassium salt of.
- Tartaric acid** and its esters, rotation dispersion of (WINTHER), A., ii, 589.
compound of, with formaldehyde (STERNBERG), A., i, 259.
uranyl derivative of (ITZIG), A., i, 76.
estimation of, in grape marc (EHRMANN and LOVAT), A., ii, 480.
estimation of total, in lees and tartars (HUBERT), A., ii, 481.
estimation of, in wines (MAGNIER DE LA SOURCE), A., ii, 586.
- Tartaric acid**, salts, rotation of, in water and in glycerol (LONG), A., i, 75.
antimony potassium salt (*tartar emetic*), electrolysis of (v. HEMMELMAYER), A., ii, 459.
interaction of, with tannin (LJUBAVIN), A., i, 161.
ferric potassium salt, distinction between ferric citrate and (FIORA), A., ii, 235.
potassium hydrogen salt (*cream of tartar*), crude, assay of (CARLES), A., ii, 435.
sodium hydrogen salt, action of ammonium paramolybdate on the specific rotation of (KLASON and KÖHLER), A., i, 75; (ITZIG), A., i, 259.
sodium and potassium salts and ethyl sodium and potassium salts (TER BRAAKE), A., i, 742.
ethyl sodium and potassium salts, action of water on (TER BRAAKE), A., i, 742.

- Tartaric acid**, dimethylene ester (CHEMISCHE FABRIK AUF AKTIEN), A., i, 705.
 ethyl ester, influence of benzene, toluene, *o*-, *m*-, and *p*-xylenes and of mesitylene on the rotation of (PATTERSON), T., 1097; P., 1902, 133.
 influence of naphthalene on the rotation of (PATTERSON), T., 1134; P., 1902, 133.
 di-*sec*-octyl ester (McCRAE), T., 1221; P., 1902, 182.
- Tartaric acid**, nitro-, and its esters (FRANKLAND, HEATHCOTE, and HARTLE), P., 1902, 250.
- Tartars**, estimation of total tartaric acid in (HUBERT), A., ii, 481.
- Tautomeric atomic groupings** (LAAR), A., i, 1.
- Taxine**, its mode of extraction, properties, and hydrochloride, sulphate, gold chlorides and methiodide (THORPE and STUBBS), T., 874; P., 1902, 123.
- Taxus baccata*. See Agricultural Chemistry.
- Tea**, microchemical examination of (KLEY), A., ii, 115.
- Teeth**, amount of fluorine in (JODLBAUER and BRANDL), A., ii, 34.
- Tellurium** (KÖTHNER), A., ii, 67; (GUTBIER), A., ii, 652.
 presence of, in American silver ingots (VINCENT), A., ii, 205.
 atomic weight of (SCOTT), P., 1902, 112; (KÖTHNER), A., ii, 67; (PELLINI), A., ii, 69; (GUTBIER), A., ii, 254.
 allotropy of (BELJANKIN), A., ii, 134.
 colloidal (GUTBIER), A., ii, 653.
 pseudo-solution of (GUTBIER), A., ii, 610, 653.
- Tellurium alloys** with antimony (FAY and ASHLEY), A., ii, 266.
 with bismuth (GUTBIER), A., ii, 558.
 with lead (FAY and GILLSON), A., ii, 260.
- Tellurium compounds**, decomposition of, by moulds (ROSENHEIM), P., 1902, 138.
- Tellurium tetrachloride** (LENHER), A., ii, 316.
 hydride. See Hydrogen telluride.
- Telluride of mercury**. See Coloradoite.
- Tellurides** in Western Australia (HOLROYD; SIMPSON), A., ii, 509.
- Tellurium iodides** (GUTBIER and FLURY), A., ii, 653.
- Telluric acid** (GUTBIER), A., ii, 134.
 and its hydrates (GUTBIER and FLURY), A., ii, 654.
- Tellurium**:—
 Telluric acid, salts of (GUTBIER), A., ii, 558.
- Tellurates**, isomorphism of selenates and (NORRIS and KINGMAN), A., ii, 15.
- Tellurium**, detection of, in presence of arsenic and selenium by the action of Bacteria and Fungi (MAASSEN), A., ii, 629.
 separation of, from bismuth (GUTBIER), A., ii, 558.
- Temperature**. See Thermochemistry.
- Tendon**, mucoids in (CUTTER and GIES), A., i, 67.
- Tendon Achilles**, chemical constituents of (BUERGER and GIES), A., ii, 95.
- Terbium** (MARC), A., ii, 505.
- Terephthalic acid**, methyl ester, compound of, with phosphoric acid (RAIKOW and SCHTARBANOW), A., i, 228.
- Terephthalic acid**, bromo-, and nitro-, conductivity of the esters of (WEGSCHEIDER), A., i, 617.
 nitro-, esterification of (WEGSCHEIDER, PIESEN, and BREYER), A., i, 620.
- Ternary compounds**, separation of, from urine (DOMBROWSKI), A., ii, 633.
 systems. See Equilibrium.
- Terpane**, 1:8:9-*tri*bromo (WALLACH and RAHN), A., i, 803.
- Terpene alcohols** and their ethers, use of sodium salicylate in the estimation of mixtures of (DARZENS and ARMIN-GEAT), A., ii, 178.
- Terpenes**, C₁₁H₁₈, from carvenone and dihydrocarvone (WALLACH and THÖLKE), A., i, 723.
- Terpenes** and ethereal oils (WALLACH), A., i, 791, 801; (WALLACH, BÖTTICHER, SPERANSKI, and THÖLKE), A., i, 798; (WALLACH and FRESENIUS), A., i, 800; (WALLACH and RAHN), A., i, 803; (WALLACH and SCHEUNERT), A., i, 805; (WALLACH and FRANKE), A., i, 806.
 derivatives of (TILDEN and BURROWS), P., 1902, 161.
 cyclic, in the organism (FROMM and HILDEBRANDT), A., ii, 159; (FROMM and CLEMENS), A., ii, 341.
- Terpenylic acid** from isocamphoronic acid (PERKIN), T., 258; P., 1900, 215.
- Terpinene**, constitution of (HARRIES), A., i, 361.
- Terpineol** (m.p. 35–36°) and its phenylurethane, nitrosochloride, and nitrole-piperide (STEPHAN and HELLE), A., i, 631.

- Terpineol**, mercuric compounds (SAND and SINGER), A., i, 851.
***l*-Terpineol** from the oil of *Asarum canadense* (POWER and LEES), T., 63; P., 1901, 210.
 $\Delta^{3\alpha}$ -Terpen-1-ol and its urethane and nitrosochloride (STEPHAN and HELLE), A., i, 631.
 reactions of (WALLACH and RAHN), A., i, 803.
 tribromide (WALLACH and RAHN), A., i, 723.
Terpineols, constitution of (WALLACH and RAHN), A., i, 804.
Tesla rays. See under Photochemistry.
Tetanus toxin, chemical nature of (HAYASHI), A., i, 411.
 β -Tetra-acetyl bromogalactose (FISCHER and ARMSTRONG), A., i, 263.
Tetra-acetylchloro-dextrose and -galactose, synthetical experiments with (SKRAUP and KREMANN), A., i, 184.
Tetra-acetyl ethylgalactoside (FISCHER and ARMSTRONG), A., i, 746.
Tetra-acetyl galactose (SKRAUP and KREMANN), A., i, 135.
Tetra-acetylgluco- α -hydroxymandelamide, and - α -hydroxyphenylethylcarbinol (FISCHER and SLIMMER), A., i, 621.
Tetra-acetylhelicin and its cyanohydrin (FISCHER and SLIMMER), A., i, 621.
Tetra acetylmannitol dichlorohydrin (FISCHER and ARMSTONG), A., i, 264.
Tetra-acetyl- α - and - β -methylglucoside (MOLL VAN CHARANTE), A., i, 426.
Tetra-acetyl nitrodextrose (SKRAUP and KREMANN), A., i, 134.
 $\alpha\gamma\epsilon$ -Tetra-amyl- α -diphenylpentane, tetraethio- (POSNER), A., i, 298.
Tetra-aquoadipyridinechromium salts. See under Chromium.
Tetra-azo- oo -dimethoxydiphenyl chloride, rate of decomposition of (CAIN and NICOLL), T., 1440; P., 1902, 186.
Tetra-azodiphenyl chlorides, and oo -dichloro-, rates of decomposition of (CAIN and NICOLL), T., 1438; P., 1902, 186.
Tetra-azoditolyl chloride, rate of decomposition of (CAIN and NICOLL), T., 1439; P., 1902, 186.
Tetra-azoditolylsulphonic acid, sodium salt, compounds of, with aromatic amines and phenols (SEYEWETZ and BIOT), A., i, 509.
Tetra-azonium chlorides, action of, on acetylacetone and its substituted derivatives (FAVREL), A., i, 507.
 action of acetylcyanoacetic esters on (FAVREL), A., i, 406.
- Tetra-azonium chlorides**, action of, on alkylacetylacetones (FAVREL), A., i, 508.
 action of cyanoacetic esters and their derivatives on (FAVREL), A., i, 329.
 action of, on malonic esters (FAVREL), A., i, 506.
- $\beta\beta\gamma\gamma$ -Tetrabenzyl-thiol- and -sulphonebutane** (POSNER), A., i, 220.
 $\beta\beta\epsilon\epsilon$ -Tetrabenzyl-thiol- and -sulphonehexane (POSNER), A., i, 221.
 $\gamma\gamma\zeta\zeta$ -Tetrabenzyl-thiol- and -sulphone- β -methylheptane (POSNER), A., i, 221.
 $\beta\beta\delta\delta$ -Tetrabenzylthiopentane (POSNER), A., i, 221.
- Tetracarbimide** and its salts (SCHOLTZ), A., i, 140.
Tetracosane (MABERY), A., i, 734.
Tetradecane and *mono*- and *di*-chloro- (MABERY), A., i, 733.
- 4:4'-Tetraethyl diaminodiphenylmethane**, compounds of, with 1-chloro-2:4-dinitrobenzene and picric acid (LEMOUUT), A., i, 751.
- Tetrahydrobrucine** and its salts (TAFEL and NAUMANN), A., i, 53.
- Tetrahydronocarvoneisooxime** (WALLACH and FRESENIUS), A., i, 800.
- ar-Tetrahydro- β -naphthalene**, diazoamino-compounds of (SMITH), T., 900; P., 1902, 137.
- ar-Tetrahydronaphthaleneazo- β -naphthol** (SMITH), T., 903; P., 1902, 137.
- Tetrahydro- β -naphthaleneazo- β -naphthylamine** (SMITH), T., 906; P., 1902, 137.
- β -Tetrahydronaphthalide**, and its acetyl and benzoyl derivatives (SCHARWIN), A., i, 628.
- Tetrahydronaphthoic anilide** (SCHARWIN), A., i, 626.
- Tetrahydronaphthyl methyl ketone** and its oxime (SCHARWIN), A., i, 625.
- Tetrahydroquinoline-6-, -7-, and -8-carboxylic acids**, action of alkyl iodides on, and their nitrosoamines (FISCHER and ENDRES), A., i, 693.
- Tetrahydrostrychnine** (TAFEL and NAUMANN), A., i, 53.
- Tetrahydrotolene**. See Methylcyclohexene.
- Tetrahydro-*p*-tolyl methyl ketone** and its oxime, dibromo-oxime and semi-carbazone (WALLACH and RAHN), A., i, 723.
- 4-Tetrahydroxybutyl-1-allyl- and -1-phenyl-iminoazolyl-2-mercaptop** (NEUBERG and WOLFF), A., i, 84.
- 3:3':4:5'-Tetrahydroxyflavone**, and its tetra-acetyl derivative (V. KOSTANECKI and PLATTNER), A., i, 690.

- Tetrahydroxyhexoic acid**, chloro-. See Galactonic acid, chloro-.
- Tetrahydroxysylvic acid** (FAHRION), A., i, 166.
- Tetrahydroxyvaleric acid**. See Apionic acid.
- 2:4:6:4'-Tetramethoxybenzoylacetophenone** phenylhydrazone (v. KOSTANECKI and TAMBOR), A., i, 471.
- 2:4:6:3'-Tetramethoxy-4'-ethoxybenzoylacetophenone** phenylhydrazone (v. KOSTANECKI and TAMBOR), A., i, 471.
- 3:3':4:5'-Tetramethoxyflavone** (v. KOSTANECKI and PLATTNER), A., i, 690.
- Tetramethoxydinitro dibenzyl** (GILBODY and PERKIN), T., 1051; (BOLLINA, v. KOSTANECKI, and TAMBOR), A., i, 482; (v. KOSTANECKI and PAUL), A., i, 686.
- Tetramethylaminooacetic acid**, methyl ester (WILLSTÄTTER), A., i, 349.
- oo-Tetramethylaminoarseno-p-toluene** (MICHAELIS and EPPENSTEIN), A., i, 415.
- Tetramethylaminobenzhydrol**, condensation of, with primary aromatic amines in which the para-position is occupied (GUYOT and GRANDERYE), A., i, 398.
- ethers and anhydride of (FISCHER and WEISS), A., i, 402.
- Tetramethylaminobenzophenone** and its salts (BERTRAM), A., i, 437.
- 4:4'-Tetramethylaminodiphenylmethane**, compounds of, with 1-chloro-2:4-di- and 2:4:6-tri-nitrobenzene, 2:4-dinitrophenol, picric acid and picramide (LEMOULT), A., i, 751.
- 4:4'-Tetramethylaminodiphenylmethane**, 2-amino-, and 2-mono- and di-nitro- (ULLMANN and MARIĆ), A., i, 182.
- Tetramethylaminodiphenylmethyl oxide** (MÖHLAU and HEINZE), A., i, 243.
- sulphides (MÖHLAU, HEINZE, and ZIMMERMANN), A., i, 245.
- Tetramethylaminodiphenylmethyl-imine** (MÖHLAU and HEINZE), A., i, 243; (MÖHLAU, HEINZE, and ZIMMERMANN), A., i, 244.
- Tetramethylaminodiphenylmethyl-thiocarbamic acid**, leucaramine salt and tetramethylaminodiphenylmethyl ester of (MÖHLAU, HEINZE, and ZIMMERMANN), A., i, 245.
- Tetramethylaminomalonic acid** and its methyl ester (WILLSTÄTTER), A., i, 350.
- 2:8-Tetramethylamino-10-methyl-acridinium nitrate** (ULLMANN and MARIĆ), A., i, 182.
- Tetramethylaminonaphthaphenoxazonium chloride** (FUSSGANGER), A., i, 279,
- Tetramethylaminophenotazo-oxonium chloride** and iodide (MÖHLAU, KLIMMER and KAHL), A., i, 839.
- Tetramethylaminophenotoloxazine** (MÖHLAU, KLIMMER, and KAHL), A., i, 839.
- Tetramethylaminothioxanthone** and its salts and tribromo-derivative (BIEHRINGER and TOPALOFF), A., i, 695.
- 2:4-Tetramethylaminotoluene** and its additive compounds (MORGAN), T., 653; P., 1902, 87.
- 4:6-Tetramethylamino-m-xylene** and its additive salts (MORGAN), T., 654; P., 1902, 87.
- 1:3:4:5-Tetramethyl-benziminazoleol** and -benziminazole methiodide (FISCHER, RIGAUD and KOPP), A., i, 189.
- Tetramethylcatechin** and its acetyl derivative (v. KOSTANECKI and TAMBOR), A., i, 553.
- Tetramethyldehydrobrazilins**, α -, β -, and γ - (HERZIG and POLLAK), A., i, 483.
- Tetramethylhaematoxylin**, oxidation of, with chromic acid (PERKIN), T., 1057; P., 1899, 28.
- oxidation of, with permanganate (PERKIN and YATES), T., 240; P., 1899, 27, 75, 241; 1900, 107.
- Tetramethylhaematoxylene** (PERKIN), T., 1060; P., 1899, 28.
- 5:7:5':7'-Tetramethylindigotin** (KUHARA and CHIKASHIGE), A., i, 227.
- Tetramethyl-m-phenylenediamine** (MORGAN), T., 655; P., 1902, 87.
- 2:2:5:5-Tetramethylpyrrolidine**, 3-amino-, and its acetyl compounds, additive salts, carbamate and thiocarbamates (PAULY), A., i, 559.
- 2:2:5:5-Tetramethyl- Δ^3 -pyrrolidine** and its additive salts (PAULY), A., i, 559.
- 1:8:7:8-Tetramethylxanthine** (BOEHINGER and SÖHNE), A., i, 504.
- 2:5:7:10-Tetraoxy-1:6-di-p-xylyl-3:8-di-isopropylphenazine**, 4:9-dibromo- and -dichloro- (BÖTERS), A., i, 474.
- Tetraoxysylvic acid** (FAHRION), A., i, 166.
- Tetraphenylarsenic compounds** (MICHAELIS and WEBER), A., i, 515.
- Tetraphenylhydrazodicarbonamide** (BUSCH and ULMER), A., i, 574.
- 2:3:5:6-Tetraphenyl-s-piperazine** and its salts (SCHMIDT), A., i, 500.
- βεε-Tetraphenylthiol and -sulphone-hexane** (POSNER), A., i, 221.

1:2:4:5-Tetra-*o*, -*m*-, and -*p*-tolylhexa-hydro-1:2:4:5-tetrazines, and the 3:6-dimethyl derivative of the para-compound (RASSOW and RÜLKE), A., i, 404.

Tetrazoline and the action of methyl iodide on (RUHEMANN and STAPLETON), T., 261; P., 1902, 30.

Tetronic acid, condensation products of (WOLFF, GABLER, and HEYL), A., i, 676.

Thalenate, composition of (HILLEBRAND), A., ii, 270.

Thallium alloys (KURNAKOFF and PUSHIN), A., ii, 139.

Thallium haloids, compounds of, with alkaloidal hydracids (RENZ), A., i, 393, 822.

and their compounds with the halogen acids (THOMAS), A., ii, 322.

chlorides, constitution of (CUSHMAN), A., ii, 322.

chlorobromides of the type Tl_4X_6 (THOMAS), A., ii, 79.

nitrate, spectrum of (HARTLEY), T., 561; P., 1902, 68.

Thallic alums (PICCINI and FORTINI), A., ii, 607.

chloride (CUSHMAN), A., ii, 322; (MEYER), A., ii, 658.

caesium sulphates (LOCKE), A., ii, 397.

Thallous sulphates (STORTENBEKER), A., ii, 397.

manganous sulphate, anhydrous (MALLET), T., 1550; P., 1902, 198.

Thallium organic compounds:—

Thallic chloride, compounds of, with organic bases (RENZ; MEYER), A., i, 393.

action of, on dimethyl-aniline, and -*o*-toluidine, and on diphenyl-methylamine (RENZ), A., i, 823.

Thallium double cyanides (FISCHER and BENZIAN), A., i, 272.

Thallium, estimation of:—

estimation of, volumetrically (THOMAS), A., ii, 357, 472.

estimation of, in the thallous state (THOMAS), A., ii, 531.

Thamnolin (ZOPF), A., i, 789.

Theine. See Caffeine.

Theobroma Cacao, oleodistearin in the fat of the seeds of (FRITZWEILER), A., ii, 470.

Theophyllin, behaviour of, in the dog (KRÜGER and SCHMID), A., ii, 680.

THERMOCHEMISTRY:—

Thermochemical action of solutions of ammoniacal cupric oxide on solutions of ammonium, potassium, and calcium salts (BOUZAT), A., ii, 550.

THERMOCHEMISTRY:—

Thermodynamics and velocity of reaction, relations between, and simultaneous equilibrium of homogeneous systems (WEGSCHEIDER), A., ii, 9.

and the dissociation theory for binary electrolytes (PLANCK), A., ii, 597.

of concentrated solutions (SCHÜKAR-EFF), A., ii, 4; (VAN LAAR), A., ii, 122.

Heat developed by the action of oxygen on alkaline pyrogallol (BERTHELLOT), A., ii, 4.

Thermal equivalent of dissociation and vaporisation (DE FORGRAND), A., ii, 379.

expansion coefficient of nitric acid (VELEY and MANLEY), A., ii, 316, properties of carbon dioxide and of ethane (KUENEN and ROBSON), A., ii, 595.

Temperature, influence of, on the conductivity and dielectric constant of solvents and solutions (EVERSHEIM), A., ii, 596.

low, production and maintenance of (D'ARSONVAL), A., ii, 122.

influence of, on warm-blooded animals (FALLOISE), A., ii, 149.

of maximum density of solutions of barium bromide and iodide and of calcium bromide, chloride, and iodide (DE COPPET and MULLER), A., ii, 488.

of ignition, effect of pressure on the (SPRING), A., ii, 59.

Temperature coefficients of the ions in water (KOHLRAUSCH), A., ii, 489.

Temperature variations of the specific molecular conductivity and of the fluidity of sodium chloride solutions (LYLE and HOSKING), A., ii, 440.

Inversion temperature of Kelvin effect for hydrogen (OLSZEWSKI), A., ii, 444.

of the hydrates of barium acetate (WALKER and FYFFE), P., 1902, 247.

Critical constants. See under Critical.

Thermometer of light petroleum (BAUDIN), A., ii, 194.

Thermoregulator (PATTERSON), A., ii, 389.

sensitiveness of a (MENZIES), P., 1902, 10.

Thermostats and **Thermoregulators** (GEER), A., ii, 378.

Thermostat sensitive to $\frac{1}{100}$ of a degree (BRADLEY and BROWNE), A., ii, 378.

THERMOCHEMISTRY:—*Heat of combustion* = *c.*; *of dissociation* = *dis.*; *of formation* = *f.*; *of hydration* = *h.*; *of neutralisation* = *n.*

- Atomic heat** and conductivity of metals (STREINTZ), A., ii, 595.
Atomic and Molecular heats of fusion (ROBERTSON), T., 1233; P., 1902, 131.
Specific heat and heat of vaporisation of organic compounds of high boiling point (LUGININ), A., ii, 547. and heat of vaporisation of paraffins and cyclic hydrocarbons (MABERY and GOLDSTEIN), A., ii, 548.
 of gases (CROMPTON), P., 1902, 188.
 of liquids (CROMPTON), P., 1902, 236.
 of distilled metals (KAHLBAUM, ROTH, and SIEDLER), A., ii, 259.
 of vanadium (MATIGNON and MONNET), A., ii, 326.
 of milk (FLEISCHMANN), A., ii, 518.
 of petroleums (MABERY and GOLDSTEIN), A., ii, 549.
 of substances at the absolute zero (PONSOT), A., ii, 378.
Heat of combination, minimum value of the total (DE FORCRAND), A., ii, 60.
Heat of combustion of cyclic compounds (ZUBOFF), A., i, 144.
Heat of dilution, inversion points of (COLSON), A., ii, 4, 198.
 of sodium sulphate (COLSON), A., ii, 551.
Heat of dissociation in benzene solution (INNES), T., 705; P., 1902, 27.
Latent heat of fusion of solid ammonia (MASSOL), A., ii, 378.
Heat of inversion of sucrose (PETIT), A., i, 205.
Heat of reduction of metallic hydroxides (CARPENTER), T., 2; P., 1901, 212.
Heat of solidification of ammonia (DE FORCRAND), A., ii, 379.
Latent heat of solidification of liquid ammonia (DE FORCRAND and MASSOL), A., ii, 379.
Heat of vaporisation and critical phenomena, theory of the (TRAUBE), A., ii, 551.
 and specific heat of organic compounds of high boiling point (LUGININ), A., ii, 547.
 and specific heat of paraffins and cyclic hydrocarbons (MABERY and GOLDSTEIN), A., ii, 548.
Latent heat of vaporisation, formula for (FINDLAY), A., ii, 386.
 determination of (KAHLENBERG), A., ii, 195.
 relation of, to vapour density (KURBATOFF), A., ii, 379.
- Latent heat of vaporisation** of ammonia (DE FORCRAND), A., ii, 379.
Thermochemical data of alloys of aluminium with zinc (*f.*) (LUGININ and SCHÜKAREFF), A., ii, 259.
 of compounds of aluminium chloride with the alkali chlorides (*f.*) (BAUD), A., ii, 142.
 of ammoniacal cupric oxide (*f.* and *n.*) (BOUZAT), A., ii, 490.
 of cuprammonium chlorides (*f.*) (BOUZAT), A., ii, 608.
 of chlorine hydrate (*f.*) (DE FORCRAND), A., ii, 123.
 of pyrophosphoric acid (*n.*) (GIRAN) A., ii, 549.
 of potassium pervaeanate (*f.*) (PISARJEWSKY), A., ii, 327.
 of strontium hydride (*f.*) (GUNTZ), A., ii, 394.
 of zinc oxide (*f.*) (DE FORCRAND), A., ii, 489.
 of zinc oxide (*h.*) (DE FORCRAND), A., ii, 549.
 of acetylene, ethylene, and methane (*c.* and *dis.*) (MIXTER), A., ii, 60.
Heat of solution, relation between, and the shape of a solubility curve (LUMSDEN), T., 367; P., 1902, 32.
 new method of representing (ROOZEBOOM), A., ii, 61.
 methods of determining, at the point of saturation (V. STACKELBERG), A., ii, 489.
 of compounds of aluminium chloride with the alkali chlorides (BAUD), A., ii, 142.
 of solid and liquid ammonia (MASSOL), A., ii, 378.
 of pyrophosphoric acid and its sodium salts (GIRAN), A., ii, 550.
Thermometer, **Thermoregulator**, and **Thermostat**. See Thermochemistry.
Thiazine colouring matters (AKTIEN GESELLSCHAFT FÜR ANILIN-FABRIKATION), A., i, 495, 496.
 constitution of, and their relation to azonium compounds (KEHRMANN), A., i, 566.
Thio-albumose. See Albumose.
Thioamides, detection of (TSCHUGAEFF), A., i, 631.
*d***Thiocarbamic acid**, esters, from primary amines (DELÉPINE), A., i, 595.
 from secondary amines (DELÉPINE), A., i, 702.
 methylene and ethylene esters (WHEELER and MERRIAM), A., i, 537.

- Thiocarbamide** and ammonium thiocyanate, "dynamic isomerism" of (REYNOLDS and WERNER), P., 1902, 207.
hydrochloride (STEVENS), T., 79; P., 1901, 210.
- Thiocarbamides**, action of hydrazine hydrate on (BUSCH and ULMER), A., i, 575.
 detection of (TSCHUGAEFF), A., i, 631.
- Thiocarbimides** and thiocyanates (WHEELER and JOHNSON), A., i, 28, 760; (WHEELER and MERRIAM), A., i, 537; (WHEELER and JAMIESON), A., i, 762.
- d***Thiocarbonates**, cyclic, limits to the formation of (BUSCH and LINGENBRINK), A., i, 573.
- d***Thiocarbonic acid**, esters, imino-, preparation and properties of (DELÉPINE), A.; i, 199.
 mixed esters, imino- (DELÉPINE), A., i, 597.
- Thiocyanic acid**, influence of, on the growth of *Aspergillus niger* (FERNBACH), A., ii, 577.
 iodometry of (RUPP and SCHIEDT), A., ii, 538; (THIEL), A., ii, 706.
- Thiocyanates** and thiocarbimides (WHEELER and JOHNSON), A., i, 28, 760; (WHEELER and MERRIAM), A., i, 537; (WHEELER and JAMIESON), A., i, 762.
 yellow colouring matter from (GOLDBERG), A., i, 137.
- Thiocyanogen**, and ψ -**Thiocyanogen** (GOLDBERG), A., i, 137.
- Thionic acids**. See under Sulphur.
- Thionyl chloride**. See under Sulphur.
- Thio-oxyarsenic acids** (LE ROY and McCAY), A., ii, 135, 655.
- Thiophen**, new colour reaction of (KREIS), A., ii, 535.
- a*-**Thiophenecarboxylic acid**, azoimide and hydrazide, and the acyl, benzylidene and β -propylidene derivatives of the hydrazide (CURTIUS and THYSSEN), A., i, 304.
- a*-**Thiophenurethane** (CURTIUS and THYSSEN), A., i, 305.
- Thiopyronine** and its salts (BIEHRINGER and TOPALOFF), A., i, 695.
- Thiosulphates**. See under Sulphur.
- Thiuram** and *iso***Thiuram disulphides** (v. BRAUN), A., i, 271.
- iso***Thiuram disulphides** (DELÉPINE), A., i, 703.
- Thomsonite** from Schiket (Colonia Eritrea) (D'ARCHIARÓDÍ), A., ii, 408.
- Thorium**, radioactive (HOFMANN and ZERBAN), A., ii, 211.
- Thorium**, condensation point of emanations from (RUTHERFORD and SODDY), P., 1902, 219.
 new element associated with (BASKERVILLE), A., ii, 85.
- Thorium compounds**, radioactivity of (RUTHERFORD and SODDY), T., 321, 837; P., 1902, 2, 120.
- Thorium hydroxide**, action of hydrogen peroxide and of sodium hypochlorite on (PISSARJEWSKY), A., ii, 565.
 oxide, radioactivity induced by (HENNING), A., ii, 297.
 tellurate (GUTBIER), A., ii, 558.
- Metathorium oxychloride** (STEVENS), A., ii, 566.
- Thorium**, estimation of, in monazite sand (BENZ), A., ii, 431.
 precipitation and separation of, from thorium earths (KOLB), A., ii, 584.
 separation of (METZGER), A., ii, 431.
- Thujamenthoketonic acid** and its silver salt and semicarbazone (WALLACH), A., i, 802.
- Thujamenthone**, oxidation of (WALLACH), A., i, 802.
- Thujamenthoneketolactone** and its oxime, phenylhydrazone and semicarbazone (WALLACH), A., i, 802.
- Thujamenthylamine** and its acetyl and benzoyl derivatives, carbamide, phenylcarbamide, and phenylthiocarbamide (WALLACH), A., i, 802.
- Thujone**, constitution of (WALLACH), A., i, 803.
 constitution of, and its oxime (KONDAKOFF), A., i, 807.
- iso***Thujone**, oxidation of (WALLACH), A., i, 801.
- Thujonehydrateglycuronic acid** (FROMM and HILDEBRANDT), A., ii, 160.
- iso***Thujone-ketolactone** and its semicarbazone and -oxime and its phenylhydrazone (WALLACH), A., i, 801.
- Thujyl bromide** and chlorides (KONDAKOFF), A., i, 807.
- Thujyl-phenylthiocarbimide** and -thiocarbimide (v. BRAUN and RUMPF), A., i, 275.
- Thujyl series**, isomeric changes in the (KONDAKOFF), A., i, 807.
- Thymine**, synthesis of (FISCHER and ROEDER), A., i, 124, 188.
- Thymol**, preparation of (DINESMANN), A., i, 368.
 estimation of, volumetrically (ZDAREK), A., ii, 536.
- Thymolmercury salts** (DIMROTH), A., i, 850.
- Thymoquinone**, dihalogen, reactions of, with amines (BÖTERS), A., i, 473.

- Thymoquinonethylomilime** and its ethyl ether (DECKER and v. SOLONINA), A., i, 767.
- Thymyl ethyl ether**, action of nitric acid on (DECKER and v. SOLONINA), A., i, 767.
- Thymyl ethyl ether**, 2-mono- and 2:6-di-amino-, 2-nitro-6-amino-, and 6-nitro-, and their salts and acetyl and benzoyl derivatives (GAEBEL), A., i, 768.
- 2:6-dinitro-, reduction of (GAEBEL), A., i, 767.
- Thyreoglobulin** (OSWALD), A., ii, 677.
- Tin**, enantiotropy of (COHEN), A., ii, 266.
- Tin alloys** with aluminium (GUILLET), A., ii, 84.
- with antimony, copper, iron, and lead, analysis of (PONTIO), A., ii, 478.
- with copper (HEYCOCK and NEVILLE), A., ii, 261.
- with lithium (LEBEAU), A., ii, 256.
- Tin ammonium chloride** (pink salt), technical estimation of tin in solutions of (GEISEL), A., ii, 534.
- Stannous bromide and chloride**, precipitation of, by sulphuric acid (VIARD), A., ii, 606.
- chloride, compound of, with pyridine (HAYES), A., i, 492.
- titration with (WEIL), A., ii, 231.
- Metastamic acid**, behaviour of hydrochloric acid solutions of, towards hydrogen sulphide (JÖRGENSEN), A., ii, 26.
- Tin**, estimation of:—
- estimation of, by Lenssen's method (MULLER), A., ii, 177.
 - estimation of, in alloys (RICHARDS), A., ii, 701.
 - technical estimation of, in solutions of pink salt (GEISEL), A., ii, 534.
 - antimony and arsenic, separation of (WALKER), P., 1902, 246; (LANG, CARSON, and MACKINTOSH), A., ii, 530; (LANG and CARSON), A., ii, 700.
 - separation of, from antimony, copper and lead (RÖSSING), A., ii, 230.
- Tin ores**, analysis of (MULLER), A., ii, 177.
- Tin sponge and crystals** formed by electrolysis (PFANHAUSER), A., ii, 265.
- Tissues**, silicic acid in the (SCHULZ), A., ii, 275.
- extracts of, physiological action of (VINCENT and SHEEN), A., ii, 519.
- of aquatic animals, molecular concentration of the (FREDERICQ), A., ii, 94.
- elastic, composition of (RICHARDS and GIES), A., i, 410.
- (Tolyl compounds $M_e = 1$.)
- Tissues**, nerve. See Nerve.
- subcutaneous, changes in the composition of gas injected into the (PLUMIER), A., ii, 150.
- Titaniferous iron ore** from German East Africa (BORNHARDT and KÜHN), A., ii, 688.
- separation of, in basic igneous rocks (VOGT), A., ii, 32.
- Titanium alloys** (STAVENHAGEN and SCHUCHARD), A., ii, 265.
- Titanium**, quadrivalent, thiocyanates of (ROSENHEIM and COHN), A., ii, 26.
- Titanium**, estimation of (WATERHOUSE), A., ii, 476.
- Titanomagnetite** from Croustet, Haute-Loire (ARSANDAUX), A., ii, 329.
- Toad**, active components of the secretions of the skin glands of the (FAUST), A., i, 446.
- common, venom of the (PHISALIX and BERTRAND; BERTRAND), A., ii, 576.
- Toads**, poison of (PRÖSCHER), A., ii, 278.
- Tobacco**, aroma of (FRÄNKEL and WOGRINZ), A., ii, 470.
- influence of iron on the combustibility of (AMPOLA and JOVINO), A., ii, 470.
- See also Agricultural Chemistry.
- o*-**Tolidine** and its dipicrate, and dyes from its diazotisation (SCHULTZ and FIACHSLÄNDER), A., i, 751.
- m*-**Tolualdehyde**, condensation of, with ethyl cyanoacetate (GUARESCHI), A., i, 819.
- p*-**Tolualdehyde**, condensation of, with benzyl methyl ketone (GOLDSCHMIEDT and KRCZMAŘ), A., i, 41.
- action of, on 2-picoline and 6-phenyl-2-methylpyridine (DIERIG), A., i, 826.
- condensation of, with quinaldine (v. GRABSKI), A., i, 563.
- compound of, with phosphoric acid (RAIKOW and SCHTARBANOW), A., i, 228.
- Toluene**, influence of, on the rotation of ethyl tartarate (PATTERSON), T., 1097; P., 1902, 133.
- Toluene**, 2:4-dibromo-5-nitro-, and 2:4-dibromo-3:5-dinitro-, and their reduction (DAVIS), T., 870; P., 1902, 118.
- six dichloro-derivatives, chlorination of, in presence of the aluminium-mercury couple (COHEN and DAKIN), T., 1324; P., 1902, 183.

- (*Tolyl compounds Me=1.*)
- Toluene**, six *trichloro*-derivatives, preparation, nitration, and oxidation of (COHEN and DAKIN), T., 1327; P., 1902, 183.
- six *dichloro*-*mono*- and *di*-nitro-derivatives, constitution of (COHEN and DAKIN), T., 1344; P., 1902, 184.
- 2-and 4-chloronitroamino-3:5- *dibromo*- (ORTON), T., 968; P., 1902, 175.
- ω -chloro- ω -nitroso- (PILOTY and STEINBOCK), A., i, 736.
- nitro-derivatives, action of light on (CIAMICIAN and SILBER), A., i, 434.
- 2:4:6-*trinitro*-, reduction of, with hydrogen sulphide (COHEN and DAKIN), T., 26; P., 1901, 214.
- 2- and 4-nitroamino-3:5- *dibromo*- (ORTON), T., 813; P., 1902, 111.
- p*-Toluene-5-azo-4:6-diamino-*m*-xylene (MORGAN), T., 95; P., 1901, 237.
- p*-Toluene-3-azo-5-chloro-2:4-tolylene-diamine (MORGAN), T., 96; P., 1901, 237.
- p*-Tolueneazo-*p*-nitrobenzene (BAMBERGER), A., i, 509.
- p*-Tolueneazo-*p*-phenoxyacetic acid (MAI and SCHWABACHER), A., i, 127.
- p*-Toluenediazoaminotetrahydro- β -naphthalene (SMITH), T., 902; P., 1902, 137.
- m*-Tolueneanti-diazotate, and -diazohydrate, 2:4:6-*tribromo*- (HANTZSCH and POHL), A., i, 843.
- p*-Tolueneanti-diazacetates and -diazohydrates, *p*-*mono*- and 2:6-*di*-bromo-, and *o*- and *p*-nitro- (HANTZSCH and POHL), A., i, 843.
- Toluene-2:4-disulphone-anilide, and *o*- and *m*-toluidides (TRÖGER and MEINE), A., i, 537.
- o*-Toluenesulphinic acid, amide of (BASLER CHEMISCHE FABRIK), A., i, 96.
- p*-Toluene-*p*-sulphobromoallylamide (RUDZICK), A., i, 24.
- p*-Toluenesulphonalkylamides, action of nitric acid on (VAN ROMBURGH), A., i, 601.
- p*-Toluenesulphon-bromoethylamide and β -naphthoxymethylethylamide (MARCKWALD and FROBENIUS), A., i, 22.
- Toluene-*p*-sulphondiphenylamide and *o*- and *p*-*dinitro*- (REVERDIN and CRÉPIEUX), A., i, 434.
- Toluene-*p*-sulphonic acid and *o*-nitro-, and their phenyl and tolyl esters (REVERDIN and CRÉPIEUX), A., i, 434.
- Toluene-*o*-sulphonic chloride (BASLER CHEMISCHE FABRIK), A., i, 363.
- (*Tolyl compounds Me=1.*)
- Toluene-*p*-sulphonic chloride** and *o*-nitro-derivatives of (REVERDIN and CRÉPIEUX), A., i, 238.
- Toluene-*p*-sulphon-*o*- and *p*-toluidides** and their nitro-derivatives (REVERDIN and CRÉPIEUX), A., i, 434.
- m*-Toluic acid and nitrile, 4-amino- (EHRLICH), A., i, 26.
- p*-Toluic acid, electrolytic oxidation of (LABHARDT), A., i, 289.
- hydrazine derivative (CURTIUS and FRANZEN), A., i, 832.
- Toluic acids, *o*-, *m*-, and *p*-, chloromethyl and methylene esters** (DESCUDÉ), A., i, 339.
- o*-Toluidine, 5-nitro-, methylation of, and its hydrobromide (STADEN), A., i, 444.
- 6-nitro-, and its hydrobromide and hydrochloride, and methylation of (V. TATSCHALOFF) A., i, 443.
- m*-Toluidine, 5-nitro-, methylation of, and its hydrobromide (HAIBACH), A., i, 443.
- p*-Toluidine, 2-nitro-, methylation of, and its hydrobromide (HAIBACH), A., i, 444.
- 5-Toluidine**, 2:4-*dibromo*-, and its acetyl derivative (DAVIS), T., 872; P., 1902, 118.
- 6-Toluidine**, 2:4-*dinitro*- (COHEN and DAKIN), T., 28; P., 1901, 214.
- Toluidines**, coupling of, with diazo-compounds (MEINER), A., i, 576.
- o*-Toluidinoacrylic acid, *o*-toluidide of (DAINS), A., i, 603.
- p*-Toluidinomethylenebenzyl cyanide (DAINS), A., i, 603.
- Toluidinomethylenemalic acids, *o*- and *p*-, and their ethyl esters, *o*- and *p*-toluidides of** (DAINS), A., i, 603.
- 7-p-Toluidino-1-nitroanthraquinone** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 382.
- p*-Toluidino-phosphoryl chloride and phosphamic acid (CAVEN), T., 1367; P., 1901, 27.
- 5-m-Toluidino-2-isopropylbenzoquinone, 3:6-*dibromo*** (BÖTERS), A., i, 473.
- 5-p-Toluidino-2-isopropylbenzoquinone, 3:6-dichloro** (BÖTERS), A., i, 474.
- p*-Toluidino-*p*-toluquinoneoxime, formation of (BÖRNSTEIN), A., i, 165.
- o*-Tolunaphthaacidine (ULMANN), A., i, 119.
- p*-Toluoyltartaric acid, ethyl ester, nitration of (FRANKLAND, HEATHCOTE, and GREEN), P., 1902, 251.
- Toluquinol, *penta*bromo-** and its acetate (ZINCKE and WIEDERHOLD), A., i, 285.

- (*Tolyl compounds Me=1.*)
- Toluquinol, tetrabromo- and tetrachloro-,** and their diacetyl derivatives (RICHTER), A., i, 163.
- tetrachlorobromo-,** and its acetate (ZINCKE and WIEDERHOLD), A., i, 283.
- p-Toluquinophthalone** tetrabromide (EIBNER and MERKEL), A., i, 495.
- p-Toluthioquinanthrene** tetranitrato and disulphate and hydrochloride of the acetyl compound (EDINGER and EKELEY), A., i, 231.
- Tolyl methyl ethers, o- and p-, condensation of,** with benzaldehyde (FEUERSTEIN and LIPP), A., i, 769.
- p-Tolyl thiocyanate** and disulphide (RABAUT), A., i, 673.
- N-o-Tolylacetimino-ethyl ether** hydrochloride (LANDER), T., 597; P., 1902, 73.
- o-Tolylallophanic acid,** ethyl ester (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1571.
- p-Tolylamino-m-hydroxybenzyl alcohol** (GNEHM and VEILLON), A., i, 288.
- p-Tolylamino-m-hydroxyphenyl-p-eyanoazomethine-p-nitrobenzene** (GNEHM and VEILLON), A., i, 287.
- p-Tolylamino-a-naphthyl-4-cyanoazo-methine-p-nitrophenyl** (GNEHM and RÜBEL), A., i, 145.
- m-Tolylarsenic compounds** (MICHAELIS and EISENLOHR), A., i, 415.
- p-Tolylarsenic compounds** (MICHAELIS, ULRICH, ZIEGLER, and EPPENSTEIN), A., i, 413.
- p-Tolylazoacetaldoxime,** constitution of (VOSWINCKEL), A., i, 844.
- o-Tolylazobenzoylacetic acid,** ethyl ester (BÜLOW and HAILER), A., i, 326.
- p-Tolylazocarbonamide** (BAMBERGER), A., i, 509.
- N-o- and -p-Tolylbenzimino-ethers** (LANDER), T., 595; P., 1902, 73.
- o-Tolylbiuret** (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1571.
- p-Tolyl butyl ketone** and its semicarbazone (BLAISE), A., i, 164.
- m-Tolylecyanamide** and its benzoyl derivative (HELLER and BAUER), A., i, 445.
- p-Tolylecyanamide,** and its salts and benzoyl derivative (HELLER and BAUER), A., i, 445.
- p-Tolyldialkylarsines** and their salts (MICHAELIS and KLATT), A., i, 413.
- 3-Tolyl-2:4-dibutyl-a-naphthaisooxazine** (BETTI), A., i, 57.
- p-Tolyldicarbylamine,** combination of, with toluidine, and with sulphur (SABANÉEFF, RAKOWSKY, and PROSIN), A., i, 604.
- (*Tolyl compounds Me=1.*)
- 1-o-Tolyl-2:5-dimethylpyrrole-3:5-di-carboxylic acid** and *m*-amino- (BÜLOW and LIST), A., i, 312.
- 1-m-Tolyl-2:5-dimethylpyrrole** and its **3:4 dicarboxylic acid** (BÜLOW and LIST), A., i, 312.
- 1-p-Tolyl-2:5-dimethylpyrrole-3:4-dicarboxylic acid,** amino-, and its acid salts (BÜLOW and LIST), A., i, 238.
- o-Tolylenebis-2:5-dimethylpyrrole-3:4-dicarboxylic acid** and its ethyl ester and acid silver salt (BÜLOW and LIST), A., i, 237.
- p-Tolylenebis-2:5-dimethylpyrrole-3:4-dicarboxylic acid** and its ethyl ester (BÜLOW and LIST), A., i, 312.
- m-Tolylenediamine,** methylation of (MORGAN), T., 653; P., 1902, 87.
- 2:4-Tolylenediamine,** nitroso- (TÄUBER and WALDER), A., i, 118.
- p-Tolylenediamine,** difference of basicity of the amino-groups in (BÜLOW and LIST), A., i, 312.
- s-Tolylenediamine** and its diacetyl derivative (DAVIS), T., 873; P., 1902, 118.
- Tolylenediamines,** 2:4- and 3:5-, 5- and 2-chloro-, and their acyl derivatives (MORGAN), T., 95; P., 1901, 237.
- Tolyl ethyl ketone** and its semicarbazone (BLAISE), A., i, 164.
- β-p-Tolylglutaranil,** β -*p*-Tolylglutaranic acid, and β -*p*-Tolylglutaric acid and its salts and anhydride (AVERY and PARMELEE), A., i, 679.
- p-Tolylglyoxalosazone** and *p*-Tolylglyoxal bisphenylmethylhydrazone (KUNCKELL and VOSSEN), A., i, 645.
- Tolyl group,** migration of the, in *as*-phenyltolylethylene (TIFFENAU), A., i, 666.
- 3-p-Tolylhexahydropyridazine** and its salts (KATZENELLENBOGEN), A., i, 122.
- p-Tolylhydrazaacetaldoxime,** constitution of (VOSWINCKEL), A., i, 844.
- 6-Tolylhydroxylamine,** 2:4-*d*/nitro- (COHEN and DAKIN), T., 27; P., 1901, 214.
- o-Tolylhydroxyoxamide** and its salts and acetyl derivative (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1571; P., 1902, 197.
- p-Tolyl-m-hydroxyphenazinesulphonic acid** and its salts (GNEHM and VEILLON), A., i, 288.
- 5-Tolyl-*β*-indophenazine,** and 9-bromo- (v. KORCZYNSKI and MARCHLEWSKI), A., i, 648.
- p-Tolyl methyl ketone,** hydrazone and semicarbazone of (SORGE), A., i, 380.

- (*Tolyl compounds Me=1.*)
- p-Tolyl-a-naphthylamine* and its acyl-, bromo-, nitro-, and nitroso-derivatives, and -sulphonic acid and its salts (GNEHM and RÜBEL), A., i, 145.
- m-Tolylnitrosoamine*, 2:4:6-tribromo- (HANTZSCH and POHL), A., i, 843.
- p-Tolylnitrosoamine*, *p-mono-* and *2:6-di-bromo-* and *o-* and *p-nitro-* (HANTZSCH and POHL), A., i, 843.
- o-Tolyloxamic acid*, ethylester (PICKARD, ALLEN, BOWDLER, and CARTER), T., 1571.
- Tolyloxaminosulphonic acids*, *m-amino-*, and its calcium salt and diazo-compound (SCHOELLKOPF, HARTFORD & HANNA Co.), A., i, 119.
- o-Tolylphthalamic acid*, nitroso-derivative of (KUHARA and FUKUI), A., i, 35.
- o-Tolylphthalimides*, *s-* and *a-* (KUHARA and FUKUI), A., i, 35.
- p-Tolyl-2-picollylalkine* and its salts (DIERIG), A., i, 827.
- p-Tolyl propyl ketone*, and its semicarbazones (BLAISE), A., i, 164.
- Tolylpurpurates*, *o-* and *p-*, potassium salts (BORSCHE and LOCATELLI), A., i, 226.
- 3-*p*-Tolylpyridazine** and its 6-chloro-, 6-iodo-, nitro-, amino-, 6-phenoxy, 6-methoxy, and 6-ethoxy derivatives, and their salts (KATZENELLENBOGEN), A., i, 121.
- 3-*p*-Tolyl-pyridazinone** and -pyridazone, and 1-methyl and 1-ethyl derivatives of the pyridazone (KATZENELLENBOGEN), A., i, 121.
- p-Tolylpyrrolidine* and its picrate (KATZENELLENBOGEN), A., i, 122.
- p-Tolylsemicarbazide* (BAMBERGER), A., i, 509.
- 4-*p*-Tolylmethiocarbazide** (BUSCH and ULMER), A., i, 575.
- Tolylthioglycolic acids*, *o-* and *p-* (RAUBAT), A., i, 673.
- Tolylthiohydantoic acids*, *o-* and *p-* (WHEELER and JOHNSON), A., i, 760.
- Tolyl-*o*-thiohydantoins*, *o-* and *p-*, labile and stable, and their acetyl derivatives (WHEELER and JOHNSON), A., i, 759.
- o-Tolyltrimethylammonium bromide*, 4-nitro- (STADEN), A., i, 444.
- m-Tolyltrimethylammonium bromide*, 5-nitro- (HAIBACH), A., i, 444.
- p-Tolyltrimethylammonium bromide*, 2-nitro- (HAIBACH), A., i, 444.
- Toning solutions.** See Photochemistry.
- Tourmaline mixtures**, theory of (TSCHER-MAK), A., ii, 91.
- Toxicity** of organo-metallic compounds, influence of the methyl groups on the (LAFFONT), A., ii, 620.
- Toxins**, action of sunlight on (EMMERLING), A., i, 195.
- action of erepsin and intestinal juice on (SIEBER and SCHUMOFF-SIMONOWSKI), A., ii, 680.
- nature and properties of mixtures of, with their antitoxins (DANYSZ), A., ii, 575.
- and antitoxins, action of, *in vitro* and *in corpore* (BASHFORD), A., ii, 277.
- Transparency** of matter for X-rays, law of (BENOIST), A., ii, 191.
- Transport numbers.** See Electrochemistry.
- Trees.** See Agricultural Chemistry.
- Triacetoneamine**, compounds of, with the alkali metals (MERCK), A., i, 86.
- Triacetyl-** See also under the Parent Substance.
- Triacetylarabinose**, bromo- and chloro- (CHAVANNE), A., i, 346.
- Triacetyl*d*bromodextrose** (FISCHER and ARMSTRONG), A., i, 263.
- Triacetylgalactonic acid** and its anilide (RUFF and FRANZ), A., i, 259.
- Triacetyl methylglucoside bromohydrin** (FISCHER and ARMSTRONG), A., i, 263.
- $\beta\beta\gamma$ -Trialkyl- δ -phenylbutanes**, trithio- (POSNER), A., i, 297.
- $\beta\beta\gamma$ -Trialkylsulphone- δ -phenylbutanes** (POSNER), A., i, 297.
- Tri-*p*-anisylacetetonitrile** (v. BAEYER and VILLIGER), A., i, 770.
- Trianisylcarbinol** and its salts (v. BAEYER and VILLIGER), A., i, 381.
- Trianisylcarbinols** (v. BAEYER and VILLIGER), A., i, 770.
- Tri-*p*-anisylchloromethane** (v. BAEYER and VILLIGER), A., i, 771.
- Trianisylmethane** (v. BAEYER and VILLIGER), A., i, 381.
- Triazan derivatives** (BAMBERGER), A., i, 246, 321, 577; (BAMBERGER and GROB), A., i, 247; (BAMBERGER and FREI), A., i, 248, 324; (VOSWINKEL), A., i, 321.
- o-Triazobenzaldoxime** (BAMBERGER and DEMUTH), A., i, 95.
- products from (BAMBERGER and DEMUTH), A., i, 650.
- o-Triazobenzamide** (BAMBERGER and DEMUTH), A., i, 651.
- Triazole**, formula of (PELLIZZARI), A., i, 321.
- nitrate, preparation of (SILBERRAD), T., 602; P., 1902, 44.
- 1:2:3-Triazole**, synthesis of derivatives of (DIMROTH), A., i, 403.

- 1:2:4-Triazole** (*pyrro- $\alpha\beta'$ -diazole) derivatives (WHEELER and BEARDSLEY), A., i, 502.*
- Triazolens**, so-called, constitution of (HANTZSCH), A., i, 325.
- Tribenzoyl-**. See under the Parent Substance.
- Tribenzylamine**, and its *m*-tricarboxylic acid, and *tri-m*-ciano-derivative (EHRLICH), A., i, 25.
- Tribenzyliaminotri-*p*-tolylarsine** (MICHAELIS and KRAHE), A., i, 521.
- $\alpha\alpha\gamma$ -Tribenzylsulphone- $\alpha\gamma$ -diphenylprop-ane** (POSNER), A., i, 297.
- Tri-*tert*.butylphenylarsenic compounds** (MICHAELIS and TRAEGLER), A., i, 524.
- sec.-Tricapryl alcohol.** See *sec*.-Trioctyl alcohol.
- Tricarballylic acid** (*propane $\alpha\beta\gamma$ -tricarboxylic acid*), synthesis and dissociation constant of, and its cyano-derivative, esters, and anhydro-acid (BONE and SPRANKLING), T., 29; P., 1901, 215.
- conductivity of esters of (WEGSCHEIDER), A., i, 618.
- Tricarbethoxymethyl bromide** (WHEELER and JOHNSON), A., i, 761.
- Tricosane** (MABERY), A., i, 734.
- Tri-*p*-cumylarsenic compounds** (MICHAELIS and OBERG), A., i, 523.
- Tri- ψ -cumylarsenic compounds** (MICHAELIS and v. KARCHOWSKI), A., i, 523.
- Tridecane** and chloro- (MABERY), A., i, 733.
- 1:2:3-Triethoxybenzene.** See Pyrogallol triethyl ether.
- ρ -Triethylbenzenibenzobetaine** and its salts (MICHAELIS and EPPENSTEIN), A., i, 414.
- Triethylbenzene**, *s*- and *as*-, separation of (KLAGES), A., i, 432.
- Triethylbenzenesulphonic acids**, *s*- and *as*-, and their salts, chlorides, amides, and anilides (KLAGES), A., i, 433.
- s*-Triethyliodobenzene** (KLAGES), A., i, 433.
- Triethyl- β -naphthylammonium iodide** (REYCHLER), A., i, 757.
- Tri-*p*-ethylphenylarsenic compounds** (MICHAELIS and SCHNEEMANN), A., i, 523.
- Triethylxanthine** (BOEHRINGER & SÖHNE), A., i, 505.
- 1:2:3-Trihydroxybenzylideneaniline** (DIMROTH and ZOEPPRITZ), A., i, 294.
- Trihydroxybutyric acid.** See *d*-Erythrionic acid.
- $\alpha\beta\gamma$ -Trihydroxy- $\alpha\delta$ -diphenylvaleric acid** and its salts (THIELE and STRAUS), A., i, 158.
- 3:3':4'-Trihydroxyflavone** and its triacetate (v. KOSTANECKI and RÓZYCKI), A., i, 105.
- 3:3':5'-Trihydroxyflavone** and its triacetate (v. KOSTANECKI and WEINSTOCK), A., i, 817.
- 1:8'-Trihydroxyhexahydrocymene** (STEPHAN and HELLE), A., i, 631.
- Trihydroxymethylanthraquinone** (m.p. 224°—225°). See *iso*Hydroxy-methylchrysasin.
- 4:5'-Trihydroxy-4' methyldihydouracil** (BEHREND and GRÜNEWALD), A., i, 834.
- 2:3:8-Trihydroxynaphthalene** and its triacetate, trimethyl ether, and *6*-sulphonic acid (FRIEDLÄNDER and SILBERSTERN), A., i, 794.
- 1:8:9-Trihydroxyterpane** (WALLACH and RAHN), A., i, 804.
- Trihydroxyterpineol** (WALLACH and RAHN), A., i, 723.
- 2:2':2"-Trihydroxy-1:1':1"-trinaphthylmethane**, *cis*anhydride of, disruption of, by bromine (FOSSE), A., i, 449.
- $\beta\gamma\delta$ -Triketopentane**, preparation of, and its diphenylhydrazone, and disemicarbazone (SACHS and RÖHMER), A., i, 837.
- $\beta\gamma\delta$ -Triketo- δ -phenylbutane** and its hydrate, β -phenylhydrazone and β -semicarbazone (SACHS and RÖHMER), A., i, 837.
- Trimesitylarsenic compounds** (MICHAELIS and OBERG), A., i, 524.
- 3':4':5'-Trimethoxy-2:4-dieethoxybenzoyl-acetophenone** (v. KOSTANECKI and PLATTNER), A., i, 690.
- 2:4:6-Trimethoxydiphenyltriketone** phenylhydrazone (v. KOSTANECKI and TAMBOR), A., i, 471.
- 2:4:6-Trimethoxy-2'-ethoxybenzoyl-acetophenone** phenylhydrazone (v. KOSTANECKI and TAMBOR), A., i, 471.
- 3:3':5'-Trimethoxyflavone** (v. KOSTANECKI and WEINSTOCK), A., i, 817.
- 3:7:10-Trimethylacridinium salts**, 2:8-diamino-, and its diacetyl derivative (ULLMANN and MARIĆ), A., i, 182.
- 5-(or 3-)Trimethylaminophenylpyrazole** dimethiodide (BUCHNER and HACHUMAN), A., i, 237.
- ρ -Trimethylarsenibenzobetaine** and its salts (MICHAELIS and EPPENSTEIN), A., i, 414.
- 1:4:6-Trimethylbenziminoazole** and its salts (FISCHER, RIGAUD, and KOPP), A., i, 189.

- Trimethylbenziminoazoles**, 1:2:5- and 1:2:6-, and their salts (FISCHER and RIGAUD), A., i, 399.
- 2:4:5-T trimethylbenzylideneazine**, reduction of, and preparation of some derivatives of the reduction products (HARDING), A., i, 127.
- 2:4:5-T trimethylbenzylidenebenzylidenehydrazine** (CURTIUS and FRANZEN), A., i, 832.
- 2:4:5-T trimethylbenzylidenehydrazine** and its picrate (CURTIUS and FRANZEN), A., i, 831.
- Trimethylbrazilin**, constitution of (V. KOSTANECKI and LAMPE), A., i, 481. oxidation of, with chromic acid (PERKIN), T., 1016; P., 1902, 147; (GILBODY and PERKIN), T., 1040; P., 1899, 27; 1900, 105.
- Trimethylbrazilone** (PERKIN), T., 1017; P., 1902, 147; (GILBODY and PERKIN), T., 1040; P., 1899, 27; 1900, 105; (V. KOSTANECKI and LAMPE), A., i, 481.
- β -Trimethylbrazilone** (v. KOSTANECKI and LAMPE), A., i, 481; (HERZIG and POLLAK), A., i, 483.
- γ -Trimethylbutyrobetaine** and its salts (WILLSTÄTTER), A., i, 268.
- Trimethylcatechone** (v. KOSTANECKI and TAMBOR), A., i, 553. formula of, and its nitro-derivative (KARNOWSKI and TAMBOR), A., i, 637.
- Trimethyldehydrobrazilin**, and its acetyl derivative (HERZIG and POLLAK), A., i, 483.
- Trimethyldehydrobrazilone** and its acetyl derivative (v. KOSTANECKI and LAMPE), A., i, 481.
- 3:5:5-T trimethyl- $\Delta^{2:6}$ dihydrocatechol** and its dioxime (WOLFF, GABLER, and HEYL), A., i, 676.
- Trimethylidicyclododecatriene** (DOEBNER), A., i, 599.
- cycloTrimethylene** (cyclopropane), 1:2:3-tricyano-, and its α -tricarboxylic acid (ERRERA and PERCIABOSCO), A., i, 116.
- Trimethylenecarbinol** and its derivatives (DALLE), A., i, 525.
- cycloTrimethylenecarboxylic acid** and its isobutyl ester, chloride, and amide (DALLE), A., i, 526.
- Trimethylenedisulphonanilides** (AUTENRIETH and RUDOLPH), A., i, 22.
- Trimethylenemethane**, amino-, and its hydrochloride and platinichloride (DALLE), A., i, 525.
- cycloTrimethylenetetracarboxylic acid**, and its dicynano-derivative, ethyl ester (ERRERA and PERCIABOSCO), A., i, 116.
- Trimethylenetriethyltriamine** and its hydriodides and methiodide (EINHORN and PRETTNER), A., i, 840.
- Trimethylenexylylenedipiperidylum bromides** and salts of the *o*- and *p*-compounds (SCHOLTZ), A., i, 836.
- Trimethylethylene**. See Amylene (β -methyl- β -butylene).
- 2:2:4-T trimethylhexahydrobenzylaniline** (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 90.
- 2:4:4-T trimethylcyclohexanol** (WALLACH and SCHEUNERT), A., i, 724, 805.
- 2:4:4-T trimethylcyclohexanone** and its oximes and semicarbazone (WALLACH and SCHEUNERT), A., i, 724, 805; (WALLACH and FRANKE), A., i, 806.
- 3:5:5-T trimethylcyclohexanone** (WALLACH and FRANKE), A., i, 806.
- 2:4:4-T trimethylcyclo- Δ^2 -hexenone** and its oxime, semicarbazone and benzylidene derivative (WALLACH and SCHEUNERT), A., i, 724, 805.
- Trimethylhydrindonium** hydroxide, resolution of, into its optically active components (KIPPING), T., 275; P., 1902, 33.
- 1:2:5-T trimethylindole** (FARBENFABRIKEN VORM. F. BAYER & Co.), A., i, 493.
- Trimethylitamic acid**, diethyl ester and silver and sodium salts (NOYES and PATTERSON), A., i, 742.
- Trimethylmalic acid**, β -lactone of (KOMPPA), A., i, 204.
- Trimethyl- β -naphthylammonium iodide** (REYCHLER), A., i, 757.
- 2:3:4-T trimethylnicotinic acid** (WOLFF, GABLER, and HEYL), A., i, 677.
- 4-T trimethylolmethylpyridine-3-carboxylic acid**, lactone of, and its salts and acetyl derivative (KOENIGS), A., i, 180.
- 2-T trimethylolmethylquinoline-3-carboxylic acid**, lactone of, and its salts (KOENIGS and STOCKHAUSEN), A., i, 179.
- Trimethylparaconic acid**, and its ethyl ester, synthesis of (NOYES and PATTERSON), A., i, 741.
- Trimethylpentane- $\beta\epsilon$ -olidoic acids, $\beta\gamma$ - and $\gamma\gamma\delta$** (BALBIANO), A., i, 741.
- Trimethylpentanolic acid** (MICHEL and SPITZAUER), A., i, 257.
- 4:5:5-T trimethylcyclopentanone**, and its oxime, semicarbazone, and benzylidene derivative (BLAISE and BLANC), A., i, 300.
- 2:2:3-T trimethylcyclopentanoneoxime** (NOYES and PATTERSON), A., i, 590.
- Trimethylpiperidine** (b. p. 166°) and its derivatives (WALLACH and GILBERT), A., i, 80.

- B**.**Trimethylpropiobetaine** and its salts (WILLSTÄTTER), A., i, 268.
3:4:5-Trimethylpyrazole and its 1-carboxyamide (POSNER), A., i, 83.
3:5:5-Trimethylpyrazoline from dimethylketazine (FREY and HOFMANN), A., i, 60.
2:4:6-Triethylpyridine from Scottish shale oil (GARRETT and SMYTHE), T., 451; P., 1900, 190; 1902, 47.
1:2:5-Triethylpyrrolidine and its salts (KNORR and RABE), A., i, 54.
Trimethylpyrrolines, 1:2:4 and 1:2:5, and their salts (KNORR and RABE), A., i, 54.
2:3:4-Triethylquinolide and its additive salts, methiodide, and pseudo-ammonium base (WOLFF, GÄBLER, and HEYL), A., i, 676.
3:3:4-Triethyl-2-quinoline (CAMP), A., i, 178.
2:3:4-Triethylquinolinic acid and its salts (WOLFF, GÄBLER, and HEYL), A., i, 677.
Trimethylsuccinic acid (*pentanedicarboxylic acid*), bromination of (BÖNE and SPRANKLING), T., 50; P., 1901, 243.
Trimethylsuccinic acid (*pentanedicarboxylic acid*), bromo-, ethyl ester, action of, on ethyl sodiocyanacetate (BÖNE and SPRANKLING), T., 52; P., 1901, 243.
Trimethylsuccinic anhydride, bromo- (BÖNE and SPRANKLING), T., 51; P., 1901, 243.
2:2:4-Trimethyl-tetra- and -hexa-hydrobenzaldehyde (FARBWERKE VORM. MEISTER, LUCIUS, & BRÜNING), A., i, 102.
1:3:4-Trimethyluracil, constitution of (BEHREND and THURM), A., i, 832.
1:3:8-Trimethylxanthine (BOEHRINGER & SÖHNE), A., i, 125.
3:7:8-Trimethylxanthine (BOEHRINGER & SÖHNE), A., i, 504.
Tri- α - and - β -naphthylarsenic compounds (MICHAELIS and BÜSCHLER), A., i, 524.
Tri- β -naphthylguanazole (BUSCH and ULMER), A., i, 575.
sec.-Trioctyl alcohol (MARKOWNIKOFF and ZUBOFF), A., i, 6.
Trioxymethylene, action of acid chlorides and anhydrides of the fatty series on (DESCUDÉ), A., i, 149, 339, 738. condensation of, with α -brominated fatty esters (BLAISE), A., i, 357. action of, on glucosides and sugars (DE BRUYN and ALBERDA VAN EKENSTEIN), A., i, 745. action of magnesium organic compounds on (GRIGNARD and TISSIER), A., i, 198.
2:6:8-Trioxy-1:3:7-trimethyl-9-ethylpurine (WISLICENUS and KÖRBER), A., i, 533.
Tripalmitin (HANSEN), A., i, 340.
Tri-8-phenanthryl phosphate (WERNER), A., i, 438.
Triphenoxazine-5-phenylazine (DIEPOLDER), A., i, 830.
Triphenyl-p-anisylmethane (v. BAEYER and VILLIGER), A., i, 769.
Triphenylarsenic compounds (MICHAELIS, LUDWIG, and WEISS), A., i, 517.
Triphenylcarbinol, properties and reactions of (v. BAEYER and VILLIGER), A., i, 769. compound of, with pyridine (TSCHITSCHIBABIN), A., i, 396. methoxyl derivatives, basicity of (v. BAEYER and VILLIGER), A., i, 770.
Triphenyldehydroguanazole (BUSCH and ULMER), A., i, 574.
2:4:6-Triphenyl-3:4-dihdropyrimidine (KUNKELL and SARFERT), A., i, 835.
Triphenyldimethylguanazole (BUSCH and ULMER), A., i, 574.
Triphenylglyoxaline. See Lophine.
Triphenylguanazole and its hydrochloride, diacetyl, dimethyl and diethyl derivatives (BUSCH and ULMER), A., i, 574.
Triphenylmethane and its -sulphonic acid and sodium salt (v. BAEYER and VILLIGER), A., i, 769. preparation of (NORRIS and MACLEOD), A., i, 363. halochromy of (v. BAEYER and VILLIGER), A., i, 380. action of sulphuric acid on (v. BAEYER and VILLIGER; ULLMANN), A., i, 534.
Triphenylmethane, bromo- and chloro-, action of, on pyridine (TSCHITSCHIBABIN), A., i, 395. ω -bromo- and ω -iodo-, and their reactions, and pentaiodides (GOMBERG), A., i, 754. ω -chloro-, constitution of (KEHRMANN and WENTZEL), A., i, 89.
Triphenylmethyl (KEHRMANN), A., i, 209; (GOMBERG), A., i, 600. and its halogen derivatives and additive compounds (GOMBERG), A., i, 534. constitution of (KEHRMANN and WENTZEL), A., i, 89; (GOMBERG), A., i, 754.
Triphenylmethyl-amine, -ethylamine, -propylamine, and -amylamine (GOMBERG), A., i, 535.
2:3:4-Triphenyl-1:3- α -naphthalooxazine (BETTI), A., i, 57.
Triphenylphenacylarsenic compounds (MICHAELIS and WEISS), A., i, 518.

- Triphenyl- ψ -thiohydantoin** (WHEELER and JOHNSON), A., i, 761.
- Triplite** from Moravia, and its decomposition products (KOVÁR and SLAVÍK), A., ii, 29.
- Tripropylcarbinol.** See Decyl alcohol.
- Tristearin** (HANSEN), A., i, 339.
- Trisulphimide** and its tribenzoyl and *N*-methyl derivatives (HANTZSCH and HOLL), A., ii, 15.
- Triticonucleic acid** and its salts from embryos of wheat (OSBORNE and HARRIS), A., i, 847.
- Tri-*m*-tolylarsenic compounds** (MICHAELIS and EISENLOHR), A., i, 521.
- Tri-*p*-tolylarsenic compounds** (MICHAELIS, LAUTERWALD, and KRAHE), A., i, 520.
- Tri-*p*-tolyldehydroguanazole** (BUSCH and ULMER), A., i, 574.
- Tri-*p*-tolylguanazole** and its hydrochloride and diacetetyl derivative (BUSCH and ULMER), A., i, 574.
- Tri-*p*-tolylisomelamine** and its triacetyl derivative (HELLER and BAUER), A., i, 445.
- Tritolymethyl chloride**, additive compounds of, with metallic chlorides (GOMBERG), A., i, 535.
- Tri-*p*-tolylphenacylarsenic compounds** (MICHAELIS and KRAHE), A., i, 521.
- Tri-*m*-xylylarsenic compounds** (MICHAELIS and HEINE), A., i, 522.
- Tri-*p*-xylylarsenic compounds** (MICHAELIS and SCHÄUEBLE), A., i, 522.
- Tropic acids** (GADAMER), A., i, 174.
- Tropilidene**, reactions of (THIELE), A., i, 145.
- Tropine**, formation of, from tropidine (LADENBURG), A., i, 390, 639; (WIESTÄTTER), A., i, 559.
- the optical function of the asymmetric carbon atoms in (GADAMER), A., i, 174.
- platinichloride, action of oscine platinichloride on (HESSE), A., i, 817.
- Tropinone**, compounds of, with the alkali metals (MERCK), A., i, 86.
- α -Truxillie acid**, formation of, from cinnamic acid (RIIBER), A., i, 785.
- synthesis of (RIIBER), A., i, 617.
- α -Truxillie acid**, dibromo-, and its ethyl ester (KRAUSS), A., i, 785.
- Trypsin** (SALKOWSKI), A., ii, 616; (COHNHEIM), A., ii, 673.
- yeast (KUTSCHER), A., i, 580; (SALKOWSKI), A., ii, 165.
- action of, on gelatin (REICH-HERZBERGE), A., i, 252.
- pathogenic properties of (AGHALME), A., ii, 96.
- Tumours**, malignant, autolysis in (PETRY), A., ii, 342.
- Tungsten alloys** (STAVENHAGEN and SCHUCHARD), A., ii, 265.
- Tungsten boride** (TUCKER and MOODY), T., 16; P., 1901, 129.
- chlorides, compounds of, with hydroxy-acids (ROSENHEIM and LOEWENSTAMM), A., i, 360.
- oxides, hydrated (ALLEN and GOTTSCHALK), A., ii, 458.
- Tungstic acids**, ammonium salts (TAYLOR), A., ii, 661.
- Pertungstic acid** (PISSARJEWSKY), A., ii, 663.
- Silico-vanado-tungstic acid**, salts (FRIEDHEIM and HENDERSON), A., ii, 662.
- Tungsten steel**, estimation of tungsten in (FIEBER), A., ii, 176.
- Turkey red oil**, analysis of (HERBIG), A., ii, 366.
- Turpentine**, oil of, detection of "white spirit" in (A. and P. ANDOUARD), A., ii, 290.
- Tyrosinase** (GESSERT), A., i, 196.
- in animals (V. FÜRTH and SCHNEIDER), A., ii, 36.
- formation of, by Bacteria (LEHMANN), A., i, 580.
- Tyrosine** as nutrient for plants (SCHULZE), A., ii, 165, 280.
- detection of (BOURQUELOT), A., ii, 483.

U.

- Undecane- β -diol** (MANNICH), A., i, 592.
- β -Undecinene** (MANNICH), A., i, 592.
- Undecic acid** (β -dimethyl- α -isobutylvaleric acid, α -isobutyl- β -isopropylbutyric acid), and its amide and chloride (NEF), A., i, 7.
- Undecic acid** (δ -methyl- α -isobutylhexoic acid, α -isobutyl- β -isoamylacetic acid), and its amide and chloride (NEF), A., i, 7.
- Undecyl alcohol** (methyl-n-nonylcarbinol) (POWER and LEES), T., 1593; P., 1902, 193.
- and its acyl derivatives (MANNICH), A., i, 592.
- Undecyl ether** (MANNICH), A., i, 592.
- β -Undecylamine** (MANNICH), A., i, 592.
- β -Undecylene** and its dibromide (MANNICH), A., i, 592.
- Unsaturated compounds**, theory of (HINRICHSEN), A., ii, 129.
- constitution of (THIELE), A., i, 151.
- Uracil**, synthesis of (FISCHER and ROEDER), A., i, 124, 188.

- Uracil**, 4,5-diamino-, and its acetyl derivatives (BOEHRINGER & SÖHNE), A., i, 504.
- Uraninite** from Joachimsthal (JANDA), A., ii, 612, assay of (KERN), A., ii, 51.
- Uranium**, atomic weight of (RICHARDS and MERIGOLD), A., ii, 506. radioactivity of (SODDY), T., 860; P., 1902, 121; (BECQUEREL), A., ii, 117.
- Uranium alloys** (STAIVENHAGEN and SCHUCHARD), A., ii, 265.
- Uranium oxides**, formation of (OECHSNER DE CONINCK), A., ii, 459.
- Hyperuranic acid** (PISSARJEWSKY), A., ii, 663.
- Uranium compounds** (ORLOFF), A., ii, 506.
- Uranium salts**, colour reaction of, with hydrogen peroxide (ALOY), A., ii, 609.
- Uranium sulphate**, octahydrated (ORLOFF), A., ii, 506. sulphates, solubility of (OECHSNER DE CONINCK), A., ii, 458.
- Uranous chlorophosphate** (ALOY), A., ii, 145.
- sulphate (OECHSNER DE CONINCK), A., ii, 84.
- sulphates (KOHLSCHEUTTER), A., i, 12.
- Uranyl iodide** (ALOY), A., ii, 145.
- tellurate (GUTBIER), A., ii, 558.
- thiosulphate (FAKTOR), A., ii, 25.
- Uranium organic compounds**:—
- Uranyl potassium cyanide (ALOY), A., ii, 145.
- Urano-malic and -tartaric acids**, and their salts (ITZIG), A., i, 76.
- Uranium**, estimation of (KERN), A., ii, 51.
- Uranium mineral** resembling voglite (ANTIPOFF), A., ii, 510.
- Uranophane** from Georgia (WATSON), A., ii, 568.
- p-Urazine**, and its acetyl derivatives, and its reaction with aldehydes and ketones (PURGOTTI and VIGANÒ), A., i, 322.
- p-Urazine, dithio-(p-dikethothioxohexahydrotetraazine)** (PURGOTTI and VIGANÒ), A., i, 322.
- Urazole series**, molecular transformation in the (BUSCH), A., i, 322.
- Urazoles**, constitution of the (BUSCH), A., i, 321, 501.
- Urea** and indoxyl, correlated production of, in the organism (GNEZDA), A., ii, 339. test for (FENTON), P., 1902, 244.
- estimation of, in urine (SALLERIN), A., ii, 541.
- Urea**. See also Carbamide.
- Ureides**, cyclic, electrolytic reduction of (TAFEL and REINDL), A., i, 15.
- Ureometer**, new (FREDERICQ), A., ii, 186.
- Ureter**, effect of compression of the, on the urine (PFAUNDLER), A., ii, 617.
- Urethane**, action of, on pyruvic acid (SIMON), A., i, 14. action of sulphuryl chloride on (EPHRAIM), A., i, 269.
- Urethane**, nitroso-, constitution of the so-called (BRÜHL), A., i, 353.
- Uric acid**, production of, from free purine bases (KRÜGER and SCHMID), A., ii, 415. synthesis of, in the organism (WIENER), A., ii, 338.
- oxidation of, by permanganate (JOLLES), A., i, 86; (FALTA), A., i, 252; (TOCHER), A., ii, 706.
- oxidation product of (SCHOLTZ), A., i, 140.
- fate of, administered as such, in the organism (SOETBEER and IBRAHIM), A., ii, 337; (SALKOWSKI), A., ii, 616.
- excretion of (ULRICI), A., ii, 36.
- direct titration of, in urine (RUHE-MANN), A., ii, 435.
- estimation of, in urine (JOLLES), A., ii, 112; (MÁTRAI; RUDISCH and BOROSCHEK), A., ii, 541; (JOLLES; WOGRINZ; TOCHER), A., ii, 706.
- Jolles' process for the estimation of, in urine (MAKOWKA), A., ii, 182; (RICHTER), A., ii, 632.
- iso***Uric acid**, conversion of, into uric acid and thioxanthine (FISCHER and TÜLLNER), A., i, 664.
- γ-Uric acid**, γ-thio-, and its salts (FISCHER and TÜLLNER), A., i, 664.
- Urinary albumose**, crystalline (GRUTTERINK and DE GRAAF), A., ii, 276.
- duct of wild boar, and from the kidney of a deer, concretions from the (COUNCLER), A., ii, 96.
- Urine**, composition of, in a case of osteomalacia (THOMAS), A., ii, 96. action of *Bacillus coli communis* on (NOËL-PATON), A., ii, 679.
- action of curare on the excretion of carbon dioxide and nitrogen in (FRANK and v. GEBHARD), A., ii, 417.
- action of *p*-dimethylaminobenzaldehyde on (CLEMENS), A., ii, 296.
- effect of compression of the ureter on the (PFAUNDLER), A., ii, 617.

Urine in acid and alkaline solution, oxidation numbers of (NIEMILOWICZ and GITTELMACHER-WILENKO), A., ii, 679.
 human, excretion of ammonia in (CAMERER), A., ii, 416.
 elimination of calcium hypophosphite in (MASSOL and GAMEL), A., ii, 37; (PANZER), A., ii, 225.
 excretion of glycuronic acid in (MAYER), A., ii, 616.
 excretion of sodium chloride in, after extirpation of the pancreas (LÉPINE and MALTET), A., ii, 616.
 influence of phloridzin on the elimination of sodium chloride in (LÉPINE and MALTET), A., ii, 617.
 excretion of uric acid in (ULRICI), A., ii, 36.
 of geese, effect of acids and alkalis on (KOWALEWSKI and SALASKIN), A., ii, 619.
 infants', relation of carbon and nitrogen in (v. OORDT), A., ii, 416.
 antipyrylcarbamide in, after the administration of pyramidone (JAFFÉ), A., i, 840.
 boric acid in, after administration of the drug (SONNTAG), A., ii, 678.
 cacodylic acid in, and its detection (VITALI), A., ii, 161.
 colouring matters of (RÖSSLER), A., i, 49.
 indoxyl origin of red colouring matters of (MAILLARD), A., i, 372.
 new diastases in (POZZI-ESCOL), A., i, 655.
 glycocyanine, glycocyanidine, and ptomaines in, in infectious diseases (NICOLA), A., ii, 679.
 indoxyl in (BLUMENTHAL), A., ii, 620.
 oxalic acid and its estimation in (AUTENRIETH and BARTH), A., ii, 575.
allooxygenate acid from (BONDZYŃSKI and PANEK), A., i, 847.
 peptone in (ITO), A., ii, 160.

Urine, analytical processes relating to:—
 osmotic analysis of (STEYRER), A., ii, 632.
 detection of acetoacetic acid in (ALLARD), A., ii, 363.
 new test for albumin in (POLLACCI), A., ii, 369.
 detection of albumins in (PORTES and DESMOULIÈRE), A., ii, 236.
 test for aldehydes and dextrose in (RIEGLER), A., ii, 585.
 detection of blood colouring matters in (ROSSEL), A., ii, 296.

Urine, analytical processes relating to:—
 detection of cacodylic acid in (VITALI), A., ii, 161.
 clinical detection and estimation of dextrose in (RUINI), A., ii, 233.
 the copper and picric acid test for dextrose in (LYONS), A., ii, 179.
 nickel salts as a test for dextrose in (DUYK), A., ii, 54.
 ozazole test for the detection of dextrose in (ESCHBAUM), A., ii, 585.
 the phenylhydrazine test for dextrose in (LYONS), A., ii, 703.
 detection of indican in (STRZYŻOWSKI), A., ii, 186.
 detection of mercury in (LAQUEUR), A., ii, 359.
 detection of morphine and strychnine in (AUTENRIETH), A., ii, 368.
 detection of pentose in (BIAL; KRAFT), A., ii, 703.
 detection of peptone in (ČERNÝ), A., ii, 116.
 test for santonin in (CROUZEL), A., ii, 544.
 direct titration of uric acid in (RUHE-MANN), A., ii, 435.
 estimation of acidity in (ARNSTEIN), A., ii, 159.
 estimation of the acidity of, by calcium sucrate (DE GIRARD and VIRES), A., ii, 707.
 estimation of arabinose in (NEUBERG and WOHLGEMUTH), A., i, 347.
 normal, estimation of carbohydrates in, by the Schotten-Baumann method of benzoylation (REINBOLD), A., ii, 633.
 estimation of dextrose in (REALE), A., ii, 234.
 estimation of dextrose in, by fermentation (LYONS), A., ii, 704.
 estimation of iron in (NEUMANN), A., ii, 583.
 estimation of mercury in (BARDACH), A., ii, 532.
 estimation of mercury in, colorimetrically (ESCHBAUM), A., ii, 476.
 estimation of nitrates in, gasometrically (GERLINGER), A., ii, 173.
 estimation of nitrogen in (NEUBERG; CAMERER), A., ii, 426.
 estimation of oxalic acid in (AUTENRIETH and BARTH), A., ii, 575.
 estimation of proteids in (HERLANT), A., ii, 295.
 estimation of sodium and potassium in (GARRATT), A., ii, 226.
 estimation of sulphates in (FOLIN), A., ii, 352.

- Urine, analytical processes relating to:**—
estimation of urea in (SALLERIN), A., ii, 541.
estimation of uric acid in (JOLLES), A., ii, 112; (MÁTRAI; RUDISCH and BOROSCHEK), A., ii, 541; (JOLLES; WOGRINZ; TOCHER), A., ii, 706.
Jolles' process for the estimation of uric acid in (MAKOWKA), A., ii, 182; (RICHTER), A., ii, 632.
estimation of xanthine derivatives in (NIEMILOWICZ), A., ii, 542.
error in the estimation of xanthouric compounds in, caused by foods and medicaments (ANDRÉ), A., ii, 542.
separation of ternary compounds, nitrogenous compounds and alkaloids in (DOMBROWSKI), A., ii, 633.
See also Alcaptonuria, Diabetes, Diuresis, Excretion, Indoxyluria, and Pentosuria.
- Urobilin** in ascitic fluid (STICH), A., ii, 418.
spectrum of (BIER and MARCHLEWSKI), A., i, 636.
- Usnarin acid** from Lichens (ZOPF), A., i, 789.
- Usnic acid** (SALKOWSKI), A., i, 228.
- Usnic acids** from Lichens (HESSE), A., i, 680; (ZOPF), A., i, 789.
- Usnidic acid**, formula of, and its salts, and **Usnidole** (HESSE), A., i, 680.

V.

- Vacuum**, chemical method for obtaining a (BENEDICT and MANNING), A., ii, 449.
- Valencies**, partial, theory of (THIELE), A., i, 151; (GRAEBE), A., i, 209; (ERLENMEYER), A., ii, 389.
- Valency**, theories of (WERNER), A., ii, 554.
influence of, in the antitoxic action of ions (LOEB), A., ii, 162, 219.
- iso***Valeraldehyde**, formation of, from gelatin (NEUBERG and BLUMENTHAL), A., ii, 516.
- iso***Valeramide**, α -amino-, hydrobromide (SCHIFF), A., i, 250.
- Valeric acid**, chloromethyl and methylene ester (DESCUDÉ), A., i, 339.
- Valeric acid**, $\alpha\beta\gamma\delta$ -tetrabromo- (DOEBNER), A., i, 340.
 δ -bromo-, δ -chloro- and δ -iodo- (CLOVER), A., i, 201.
- iso***Valeric acid**, and α -bromo-, dialkyl-amides of (LIEBRECHT), A., i, 714.
- iso***Valeric acid**, *isobornyl* and *isofenchyl* esters (KONDAKOFF), A., i, 478.

- Valeric acids**, amino-, and their esters, salts, phenylcarbamides, and benzoyl derivatives (SLIMMER), A., i, 206.
- δ -Valerolactone** (CLOVER), A., i, 201.
- iso***Valerylacetic acid**, methyl ester and copper salt, and *iso***Valeryacetone** (BONGERT), A., i, 73.
- iso***Valerylacetoacetic acid**, isomeric esters and copper salt (BONGERT), A., i, 73.
- iso***Valerylazoimide** (HILLE), A., i, 142.
- iso***Valeryhydrazide** and its benzylidene and propylidene derivatives (HILLE), A., i, 141.
- iso***Valeryl-*p*-toluidide** and *m*-bromo- (MAFFEZZOLI), A., i, 756.
- Vanadium**, atomic weight and specific heat of (MATIGNON and MONNET), A., ii, 326.
- Vanadium** fluorine compounds (MELIKOFF and KASANEZKY), A., ii, 27.
- Pervanadic acid** (PISSARJEWSKY), A., ii, 663.
- Vanadates** and **Pervanadates**, action of hydrogen peroxide on (PISSARJEWSKY), A., ii, 326.
- Vanado-silico-tungstic acid**, salts (FRIEDHEIM and HENDERSON), A., ii, 662.
- Vanadium silicide** (MOISSAN and HOLT), A., ii, 610.
- quadrivalent, sulphites and sulphates of (KOPPEL and BEHRENDT), A., ii, 85.
- Vanadous** salts, reactions of (PICCINI and MARINO), A., ii, 664.
sulphate and double sulphates (PICCINI and MARINO), A., ii, 663.
- Vanadium**, detection, estimation and separation of:—
detection of, and its separation from molybdenum (TRUCHOT), A., ii, 477.
estimation of (SMITH), A., ii, 231; (WILLIAMS), A., ii, 431; (CORMIMBOUF), A., ii, 584.
estimation of, electrolytically (TRUCHOT), A., ii, 477.
- Vanilla**, formation of the perfume of (LECOMTE), A., ii, 40.
- Vanillyl- α -osazone** (BILTZ and AMME), A., i, 469.
- Vanillin**, action of benzaldehyde on (ROGOFF), A., i, 103.
action of *m*- and *p*-nitrobenzaldehyde on (ROGOFF), A., i, 547.
compound of, with phosphoric acid (RAIKOW and SCHTARBANOW), A., i, 228.
- Vanillinphenylhydrazone**, oxidation of (BILTZ and AMME), A., i, 469.
- Vanillylidene-*p*-aminoazobenzene** (WIEZYNSKI), A., i, 510.

- Vanthoffite** from Wilhelmshall, Magdeburg-Halberstadt (KUBIERSCHKY), A., ii, 406.
 artificial production of (VAN'T HOFF), A., ii, 407.
- Vapour composition**, studies in (CARVETH), A., ii, 600, 644.
 and boiling point curves (EBERSOLE), A., ii, 196.
- Vapour density**, relation of, to latent heat of evaporation (KURBATOFF), A., ii, 379.
 of phosphorophosphoric and phosphoric oxides (WEST), T., 927; P., 1902, 138.
 of sulphur, determination of, by Dumas' method (BILTZ and PREUNER), A., ii, 182.
 See also Density.
- Vapour phase**. See Equilibrium.
- Vapour pressures** and boiling points of mixed liquids (YOUNG), T., 768; P., 1902, 107.
 of mixed liquids (YOUNG and FORTEY), P., 1902, 216; (YOUNG), P., 1902, 218.
 maximum or minimum, of mixtures (KUENEN and ROSSON), A., ii, 599.
 of ternary mixtures (SCHREINEMAKERS), A., ii, 61.
 in the system, water-acetone-phenol (SCHREINEMAKERS), A., ii, 243, 380, 599.
 of aqueous ammonia solution, influence of salts and other substances on the (PERMAN), T., 480; P., 1901, 261.
 of carbon monoxide (BALY and DONNAN), T., 919.
 of hydrogen selenide (DE FORGRAND and FONZES-DIACON), A., ii, 253.
 decrease of, of solutions of sodium chloride, sulphuric acid, and potassium nitrate (SMITS), A., ii, 123.
 of isopropyl isobutyrate (YOUNG and FORTEY), T., 783; P., 1902, 108.
- Vapours**, compressibility of, accurate method of measuring the (STEELE), T., 1076; P., 1902, 165.
 of organic liquids, condensation of, in dust-free air (DONNAN), A., ii, 302.
- Variolaric acid** (ZOPF), A., i, 465.
- Vase**, antique, from Abou-Roach, composition of (BERTHELLOT), A., ii, 397.
- Vegetable extracts**, analysis of (MICKO), A., ii, 369.
- Vegetables**. See Agricultural Chemistry.
- Velocity of reaction**. See Affinity.
- Venin**, haemolytic action of (CALMETTE), A., ii, 519.
- Venins**, proteolytic action of (LAUNOY), A., ii, 673.
- Venins**. See also Poisons.
- Venom**, snake. See Poison.
- Veratric acid**, dichloro-, affinity of (COPPADORO), A., i, 784.
- Veratrine** (*cavaine*), decomposition of (HORST), A., i, 549.
- Veratrole**, tribromonitro- and trichloronitro- (COUSIN), A., i, 288.
- Verbascum-saponin** and -sapogenin (ROSENTHALER), A., ii, 282.
- Vesuvianite** (?) from New Jersey (CHESTER), A., ii, 611.
- Vesuvius**, saline sublimation products of (CASORIA), A., ii, 407.
- Vines**. See Agricultural Chemistry.
- Vintage musts** and liqueur wines, special characters and analysis of (CARMANTRAND), A., ii, 712.
- Vinylacetic acid** and its salts (FICHTER and SONNEBORN), A., i, 256.
- p*-Vinylacrylic acid** and its salts (DOEBNER), A., i, 340.
 action of barium hydroxide on (DOEBNER), A., i, 598.
 reduction of (DOEBNER), A., i, 340; (THIELE and JEHL), A., i, 584.
- Vinylamine**, Gabriel's, constitution of (MARCKWALD and FROBENIUS), A., i, 24.
- Vinylidiacetoneamine**, compounds of, with the alkali metals (MERCK), A., i, 86.
- p*-Vinylphenol**, bromo-derivatives of, and their acetates (ZINCKE, SIEBERT, and REINBACH), A., i, 606.
 3:5-di- and β -3:5-tri-bromo-, and their acetates (ZINCKE and LEISSE), A., i, 615.
- Vinylsulphonanilides** (AUTENRIETH and RUDOLPH), A., i, 22.
- Violaqueicitrin**, identity of, with osyritrin and myrticlorin (PERKIN), T., 477; P., 1901, 88; 1902, 58.
- Viper berus**, elaboration of zymogen in the gastric glands of the (LAUNOY), A., ii, 618.
- Viscosity** (*internal friction*), laws of (NATANSON), A., ii, 5.
 of helium and its alteration with temperature (SCHULTZE), A., ii, 5.
 of sulphur (MALUS), A., ii, 181.
 of the blood (BURTON-OPITZ), A., ii, 410.
- Volcanic dust** which fell on Barbados after the St. Vincent eruption (FLETT), A., ii, 513.
- Volume**, atomic, significance of changes of (RICHARDS), A., ii, 305, 444.
 specific, of oxygen and nitrogen vapour at the boiling point of oxygen (DEWAR), A., ii, 304.

Volume, specific, of isopropyl isobutyrate (YOUNG and FORTEY), T., 783; P., 1902, 108.

Voltmeter. See Electrochemistry.

W.

Walnut oil, Bulgarian (PETKOW), A., ii, 115.

Washing apparatus for gases (TIST-SCHENKO), A., ii, 312.

WATER:—

spectrum of the dissociation of the vapour of (TROWBRIDGE), A., ii, 589.

liquid, molecular weight of (VAUBEL), A., ii, 388.

volume and density changes in, due to the absorption of gases (WENZEL), A., ii, 125.

decomposition of the vapour of, by the electric spark (CHAPMAN and LID-BURY), T., 1301; P., 1902, 183.

vapour pressure in the system, acetone, phenol, and (SCHREINEMAKERS), A., ii, 243, 380, 599.

equilibrium between sodium carbonate, ethyl alcohol, and (KETNER), A., ii, 308.

action of, on lead (RČZIČKA), A., ii, 77. distilled, action of, on lead (CLOWES), P., 1902, 46.

Water from an exhumed coffin, composition of (SCHMELCK), A., ii, 279.

NATURAL WATERS:—

significance of phosphates in (WOOD-MAN), A., ii, 702.

estimation of chlorine in (WINKLER), A., ii, 46.

estimation of small amounts of hydrogen sulphide in (WINKLER), A., ii, 223.

estimation of the reducing power of (WINKLER), A., ii, 701.

Blood or red rain (PASSERINI), A., ii, 148; (CASALI), A., ii, 424.

Meteoric waters, ammonia in (CASALI), A., ii, 423.

Drainage water. See Agricultural Chemistry.

Lake water of the salt-lakes in the Crimea (KURNAKOFF), A., ii, 513.

Rain water. See Agricultural Chemistry.

River waters, behaviour of magnesium chloride in (ERDMANN), A., ii, 454.

analysis of, by the aeration method (ADENEY), A., ii, 221.

Spring and mineral water from the Jolanda Spring, near Staro (Italy) (SPICA and SCHIAVON), A., ii, 271.

NATURAL WATERS:—

Spring and mineral water of Paleo, near Schio (Italy) (SPICA and SCHIAVON), A., ii, 270.

sulphurous, of Vernet-les-Bains (FERRER), A., ii, 32.

estimation of boric acid in (MURARO), A., ii, 355.

Sea water and sewage, nature and speed of the chemical changes which occur in mixtures of (LETTS, BLAKE, CALDWELL, and HAWTHORNE), A., ii, 221.

of the Kara-bugas Gulf (KURNAKOFF), A., ii, 511.

Potable waters, contaminated, fatty acids in (CAUSSE), A., ii, 360.

Well waters, alkaline, from the lower green sand (FISHER), A., ii, 570. Indian saline (LEATHER), T., 887; P., 1902, 127.

Water analysis:—

new apparatus for (THOMAS and HALL), A., ii, 534.

indirect estimation of alkalis in (FISHER), A., ii, 474.

estimation of ammonia in (THOMAS and HALL; EMMERLING), A., ii, 535.

estimation of albuminoid and protein ammonia in (WINKLER), A., ii, 630.

estimation of calcium and magnesium in (GRITTLER), A., ii, 696.

estimation of hardness in (APPELIUS), A., ii, 232.

estimation of nitric acid in (WOY), A., ii, 694.

estimation of nitric acid in, colorimetrically (NOLL), A., ii, 173.

estimation of nitric acid in, by the indigo-carmine method (TROTMAN and PETERS), A., ii, 535.

estimation of nitric acid in chlorinated (MARCILLE), A., ii, 173.

estimation of organic nitrogen in (CAUSSE), A., ii, 584.

estimation of organic matter in (DE RIDDER), A., ii, 178.

estimation, colorimetrically, of oxygen dissolved in, and apparatus for (RAMSAY and HOMFRAY), A., ii, 171.

estimation of sulphates in (JACKSON), A., ii, 172.

See also Agricultural Chemistry.

Wavellite from Manziana (Province of Rome) (ZAMBONINI), A., ii, 269.

Wax, amount of, in tobacco leaves at various periods of their growth (KISSLING), A., ii, 625.

of *Algae*, and its relation to petroleum (KRAEMER and SPILKER), A., i, 333.

Montan (v. BOYEN), A., i, 72.

See also Wool wax.

- Waxes**, analysis of (JEAN), A., ii, 185.
Weed. See Agricultural Chemistry.
Weight, molecular, determination of by the boiling point method (BECKMANN), A., ii, 303.
 determination of, by a simple form of Landsberger's boiling point apparatus (LUDLAM), T., 1193; P., 1902, 180.
 new method for the determination of, in dilute solution (GUGLIELMO), A., ii, 124.
 nitriles as solvents in determinations of (KAHLENBERG), A., ii, 310.
 of carbon compounds in concentrated solutions with carbon compounds as solvents (SPEYERS), A., ii, 388.
 and critical constants of some organic compounds (GUYE and MALLET), A., ii, 195, 243.
 of hydrocarbons (GUYE and MALLET), A., ii, 195.
 of liquids (KISTIAKOWSKY), A., ii, 307.
 of salts in acetone (JONES), A., ii, 196.
 of volatile substances, determination of, by the boiling point method (ODDO), A., ii, 6.
 of iodine, determination of, by the boiling point method (ODDO), A., ii, 6.
 of phosphoryl chloride (ODDO), A., ii, 6; (CIAMICIAN), A., ii, 123.
 of sodium thiosulphate (FAKTOR), A., ii, 256.
 of sulphur (PEKÁR), A., ii, 245.
 of nitrosoaryls (BAMBERGER and RISING), A., i, 88.
- Well waters**. See under Water.
- Wheat**. See Agricultural Chemistry.
- Willow barks**, variation in the occurrence of salicin and salinigrin in different (JOWETT and POTTER), A., ii, 686.
- Wines**, natural, occurrence of salicylic acid in (WINDISCH), A., ii, 707.
 phosphoric acid in (PATUREL), A., ii, 284.
 chemical analysis of (BERNARD), A., ii, 433.
 rôle of phosphoric acid in the analysis of (WOX), A., ii, 105.
 detection and estimation of salicylic acid in (PELLET), A., ii, 56.
 estimation of volatile acids in (SELLIER; MÖSLINGER), A., ii, 180.
 sources of error in the estimation of the volatile acidity of (CURTEL), A., ii, 55; (ROCQUES and SELLIER), A., ii, 111; (DUGAST), A., ii, 235.
 estimation of dry extract in (ACKERMANN), A., ii, 362.
- Wines**, estimation of fluorine in (WINDISCH), A., ii, 104.
 estimation of lactic acid in (MÖSLINGER), A., ii, 180.
 estimation of mannitol in (SCHIDROWITZ), A., ii, 291.
 estimation of tartaric acid in (MAGNIER DE LA SOURCE), A., ii, 586.
- Wood-fibre**, colour test for (KAISER), A., ii, 434.
 detection of, colorimetrically (HERTKORN), A., ii, 632.
- Wool mordants** (EBERLE and ULFERS), A., i, 636.
- Wool wax** (JEAN), A., ii, 185.
- Workshops**, air of (HALDANE), A., ii, 671.

X.

- X-rays**. See Röntgen rays under Photochemistry.
- Xanthamides** of the terpene series (TSCHUGAEFF), A., i, 630.
- Xanthene**, bromo- and chloro- (FOSSE), A., i, 171.
- Xanthhydrol** and its salts and thio-derivative (WERNER), A., i, 50; (HEWITT), A., i, 112.
- Xanthic acid**, cuprous salt, formation of (BILLMANN), A., i, 583.
- Xanthides**, imino- (TSCHUGAEFF), A., i, 604.
- Xanthine**, derivatives of, estimation of, in urine (NIEMILOWICZ), A., ii, 542.
 homologues of (BOEHRINGER & SÖHNE), A., i, 125, 504.
- Xanthine**, thio-(BOEHRINGER & SÖHNE), A., i, 505.
 formation of, from isouric acid (FISCHER and TÜLLNER), A., ii, 664.
- Xanthine-4:5-dicarboxylic acid**, 2,7-dinitro- (BORSCHE), A., i, 836.
- Xanthone series**, syntheses in the (STROHBACH), A., i, 172.
- Xanthouric compounds**, error in the estimation of, in urine, caused by foods and medicaments (ANDRÉ), A., ii, 542.
- Xenon**, atomic weight and classification of (WILDE), A., ii, 393.
- Xylan** and araban, simultaneous occurrence of, in plants (BROWNE and TOLLENS), A., ii, 420.
 preparation of (SALKOWSKI), A., i, 206.
 behaviour of, in the organism (SLOWROFF), A., ii, 154.

- (*o-Xylene*, *Me : Mc*=1:2 ; *m-xylene*, *Me : Me*=1:3 ; *p-xylene*, *Me : Mc*=1:4.)
- o-Xylene***, 3:5-dichloro- (CROSSLEY and LE SUEUR), P., 1902, 238.
preparation of (CROSSLEY and LE SUEUR), T., 1534 ; P., 1902, 190.
densities, magnetic rotation and refractive values of (PERKIN), T., 1535.
- m-Xylene*** thiocyanate (WHEELER and MERRIAM), A., i, 583.
- m-Xylene***, 2:4- and 4:6-diamino-, acyl derivatives of (MORGAN), T., 93 ; P., 1901, 287.
2:4:6-trinitro-, compound of, with nitrosodimethylaniline (SACHS), A., i, 119.
- Xylenes**, *o*-, *m*- and *p*-, influence of, on the rotation of ethyl tartrate (PATTERSON), T., 1097 ; P., 1902, 133.
- Xylenes**, amino- and nitro-derivatives of, and the acetyl derivatives of the amino-compounds (NÖLTING and THESMAR), A., i, 313.
- Xylenazobenzenes**, 3:5-diamino-compounds of (NÖLTING and THESMAR), A., i, 314.
- Xylenedicarboxylic acid** (m. p. 123°) (v. KORCZYNSKI), A., i, 274.
- Xylenol**, bromo-derivatives of (CROSSLEY and LE SUEUR), P., 1902, 239.
- s-Xylenol***, trinitro- (BLANKSMA), A., i, 286.
- p-Xylenol***, *s-pentabromo-* (AUWERS and ANSELMINO), A., i, 215.
- p-Xylenol bromohydrin***, tribromo-, and its compounds with aniline and *o-toluidine* (ANSELMINO), A., i, 216.
- Xylenol**. See also Hydroxy-xylene.
- m-Xylinomethyleneacetylacetone*** (DAINS), A., i, 602.
- m-Xylinomethylenebenzyl cyanide*** (DAINS), A., i, 603.
- m-Xylinomethylenemalonic acid***, ethyl ester, *m-xylidide* of (DAINS), A., i, 603.
- t-Xyloketocephenylmethylosazone*** (NEUBERG), A., i, 660.
- L-Xyloic acid*** and its alkaloidal salts and phenylhydrazide (NEUBERG), A., i, 424 ; ii, 417.
- Xylophenanthrazines** (NÖLTING and THESMAR), A., i, 313.
- Xyloquinhydrone**, dibromo- (AUWERS and SIGEL), A., i, 216 ; (TEICHNER), A., i, 629.
- m-Xyloquinol***, pentabromo-, and its acetate (ZINCKE and TRIPP), A., i, 286.
- p-Xyloquinol***, *dibromo*-, and its mono- and di-acetyl and acetyl-benzoyl derivatives, and its isobutyrate and its acetyl derivative, and the methylene derivative of the mono-acetyl compound (AUWERS and SIGEL), A., i, 216.
- Xyloquinonedichlorodiimides** (NÖLTING and THESMAR), A., i, 313.
- L-Xylose*** from pancreas proteids (NEUBERG), A., ii, 417.
- m-Xylylalkylsulphones*** (TRÖGER and BUDDE), A., i, 776.
- m-Xylylarsenic*** compounds (MICHAELIS and SEEMAN), A., i, 415.
- p-Xylylarsenic*** compounds (MICHAELIS and PASEL), A., i, 416.
- p-Xylycyanamide*** (WHEELER and JOHNSON), A., i, 760.
- Xylylene** disulphides, *m*- and *p*- (KÖTZ and SEVIN), A., i, 172.
- o-Xylylene dithiocarbonate phenylhydrazone*** (BUSCH and LINGENBRINK), A., i, 573.
- m-Xylylene-4:6-diamine***, methylation of (MORGAN), T., 654 ; P., 1902, 87.
- o-Xylylenedibenzyldisulphone*** (AUTENRIETH and HENNINGS), A., i, 389.
- Xylenemercaptals**, *o*-, *m*-, and *p*- (KÖTZ and SEVIN), A., i, 172.
- cyclo-*o-Xylylene-1:3-dithio-*** and **-1:3-disulphone-2-methylene**, **-2-methyl-methylene** and **-2-phenyl-2-methyl-methylene** (AUTENRIETH and HENNINGS), A., i, 389.
- Xylenethiols** and its compounds (KÖTZ and SEVIN), A., i, 172.
- m-Xylyl pentadecyl ketone*** (KLAGES), A., i, 613.
- p-Xylylthiocarbimide*** (STRZELECKA), A., i, 470.
- Xylylsulphoneacetic acids**, *m*- and *p*- (TRÖGER and BUDDE), A., i, 776.
- Xylylsulphone-ethylalcohols**, *m*- and *p*-, and ether of the meta-compound (TRÖGER and BUDDE), A., i, 775.
- Xylylthiohydantoic acids**, *α-o*- and *-p*- (WHEELER and JOHNSON), A., i, 760.
- Xylyl-*ψ-thiohydantoins***, *α-o*- and *-p*-, labile and stable (WHEELER and JOHNSON), A., i, 760.

Y.

- Yeast**, permanent, preparation of, with acetone (ALBERT, BUCHNER, and RAPP), A., ii, 521.
top, action of, on gentiobiose (BOURQUELOT and HÉRISSEY), A., i, 744.
glycogen from (HARDEN and YOUNG), T., 1224 ; P., 1902, 182.
invertase from (OSHIWA ; BOKORNY), A., i, 848.

- Yeast**, proteids from (SCHRÖDER), A., i, 730.
 trypsin from (KUTSCHER), A., i, 580 ;
 (SALKOWSKI), A., ii, 165.
 formation of zymase in (BUCHNER
 and SPITTA), A., i, 580.
- Yeast cell**, killed, chemical processes in
 the (R. and W. ALBERT), A., ii, 98.
- Yeast-gum** (OSHIMA), A., i, 848.
- Yeasts**, action of tannins and colouring
 matters on the activity of (ROSEN-
 STIEHL), A., ii, 219.
- Yew**. See *Taxus baccata* under Agricultural Chemistry.
- Ylang-ylang**, oil of (DARZENS), A., i, 301.
- Yohimbine** (ARNOLD and BEHRENS), A.,
 i, 233.
- Ytterbium** and its atomic weight and
 salts (CLEVE), A., ii, 659.
- Ytterbium chloride**, anhydrous (MATIG-
 NON), A., ii, 505.
- Yttralite**, composition of (HILLEBRAND),
 A., ii, 270.
- Yttrium chloride**, anhydrous (MATIG-
 NON), A., ii, 505.
- Yucamyrins and Yuceleresen** (TSCHIRCH
 and CREMER), A., i, 813.
- Z.**
- Zein** as food (SZUMOWSKI), A., ii 674.
- Zeolites** in the granulites of Cala
 Francesc (Island of Maddalena,
 Sardinia) (RIMATORI), A., ii, 668.
 See also Mooraboolite.
- Zinc**, preparation of arsenic-free (HEH-
 NER), A., ii, 501.
 boiling point of (BERTHELOT), A., ii, 378.
 action of, on a mixture of ethyl aceto-
 acetate and methyl or ethyl iodide
 (REFORMATSKY and LUKASCHE-
 WITSCH), A., i, 10.
 condensations with (TÉTRY), A.,
 i, 584 ; (ZELINSKY and GUTT), A.,
 i, 585.
- Zinc alloys** with aluminium, thermal
 study of (LUGININ and SCHÜKAR-
 EFF), A., ii, 259.
 with strontium (GAUTIER), A., ii, 138.
- Zinc salts**, action of ammonia and
 potassium hydroxide on solutions of
 (KURILOFF), A., ii, 139.
- Zinc chloride**, compound of, with iodine
 trichloride (WEINLAND and SCHLE-
 GELMILCH), A., ii, 315.
 hydroxide, solubility of (HERZ), A.,
 ii, 77.
 solubility of, in ammonia and am-
 monium bases (HERZ), A., ii, 398.
 nitrate, spectrum of (HARTLEY), T.,
 569 ; P., 1902, 68.
 potassium nitrite (ROSENHEIM and
 OPPENHEIM), A., ii, 21.
- Zinc oxide**, polymerisation and heat of
 formation of (DE FORCRAND), A.,
 ii, 489.
 hydration of (DE FORCRAND), A.,
 ii, 549.
- peroxides** (DE FORCRAND), A., ii, 322.
 constitution and properties of (DE
 FORCRAND), A., ii, 606.
- ammonium phosphate, estimation of,
 volumetrically (DAKIN), A., ii, 628.
- sulphate, inversion of (BARNES and
 COOKE), A., ii, 486.
- sulphate, mixed crystals of, with
 copper sulphate (FOOTE), A., ii, 19.
- compounds of, with cupric oxide
 (MAILHE), A., ii, 140.
- tellurate (GUTBIER), A., ii, 558.
- Zinc organic compounds**:—
 ethoxide and isobutyloxide (TOLKAT-
 SCHEFF), A., i, 9.
 ethyl, action of, on nitro- and nitroso-
 compounds (LACHMAN), A., i, 198.
 methyl, action of, on alcohols (TOL-
 KATSCHEFF), A., i, 9.
- Zinc, estimation and separation of**:—
 estimation of, gravimetrically and
 volumetrically (COHN), A., ii, 50.
 estimation of, volumetrically (PRO-
 THIÈRE), A., ii, 475.
 estimation of, volumetrically, influence
 of the amount of iron on the
 (COPPALLE), A., ii, 357.
 quantitative separation of, from cobalt
 (ROSENHEIM and HULDSCHINSKY),
 A., ii, 697.
 separation of, from nickel (ROSENHEIM
 and HULDSCHINSKY), A., ii, 108.
- Zincite** from Poland (ANTIPOFF), A.,
 ii, 510.
- Zingiberene** and its nitrosate, nitrosite,
 and nitroso-chloride (SCHREINER and
 KREMERS), A., i, 108.
- Zirconium boride** (TUCKER and MOODY),
 T., 15 ; P., 1901, 129.
 hydroxide, action of hydrogen per-
 oxide on (PISSARJEWSKY), A., ii, 565.
- Zirconium**, quantitative separation of,
 from iron (GUTBIER and HÜLLER), A.,
 ii, 701.
- Zygadenus venenosus** (HUNT), A., ii, 278.
- Zymase** of *Eurotynopsis Gayoni* (MAZÉ),
 A., ii, 622.
 formation of, in yeast (BUCHNER and
 SPITTA), A., i, 580.
- Zymogen**, elaboration of, in the gastric
 glands of the *Viper berus* (LAUNOY),
 A., ii, 613.
 pancreatic (VERNON), A., ii, 336.
- Zymogens**, pancreatic conversion of,
 into enzymes (VERNON), A., ii, 152.
- Zymolysin** (HAMBURGER and HEKMA),
 A., ii, 515.